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THE IDENTIFICATION AND  
CONSERVATION OF THE INTERIOR  
ARCHITECTURAL PLASTICS  
AT DRAGON ROCK

Christeen Yoriko Taniguchi

A THESIS

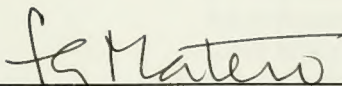
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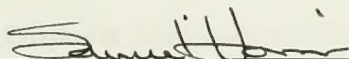
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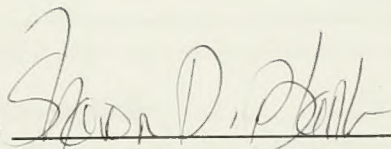
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THE IDENTIFICATION AND  
CORRELATION OF THE OUTSIDE  
ARCHITECTURAL PLANTS  
BY DRAGONOVICH

CHICAGO, ILL., 1914

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## INTRODUCTION

There was a time when Russel Wright was a household name in the United States. A generation of Americans from the 1940s to the early 1960s found his streamlined and elegant designs, such as the American Modern dinnerware, a welcome part of their home. Department stores sold his work, which included not only dinnerware, but furniture and other household items as well, thus making his designs accessible to a wide array of consumers.

During most of his career, Wright lived and worked in New York City. He also kept a summer retreat in Garrison, New York, which he and his wife Mary purchased in 1941. This would become the site for Dragon Rock, his final home. Construction of the house and studio began in the late 1950s and finished in 1960. A widower by this date, he divided his time between the City and his new home with his young daughter Annie and early on a live-in English housekeeper Diana Boyce.

Dragon Rock is modern in design, with simple right angular shapes and no frivolous ornamentation. The house combines traditional and natural building elements with newer and synthetic components; wood and butterflies exist alongside polystyrene foam and acrylic. These plastic materials at Dragon Rock are at once unique designs of a significant industrial designer and also reflections of the growing popularity of this material in American homes. This parallel between high art and popular commercial products at Dragon Rock is appropriate in light of Wright's participation in both.





Using a materials and condition survey completed by the author, this thesis documents the plastic components used at Dragon Rock, identifies their manufacturers, notes their condition and provides some direction for the future maintenance of these significant materials. This study also looks briefly at the development of the American plastics industry as it led up to the years when Russel Wright's Garrison home was built. It is hoped that the information gathered and analyzed would be useful for the future maintenance and preservation of Dragon Rock.





## THE STORY OF RUSSEL WRIGHT

Russel Wright was born on April 3, 1904, in Lebanon, Ohio, and grew up in a household made up of his father a local judge, mother and sister.<sup>1</sup> Although his artistic interests were already established even as a boy, Wright followed family tradition and entered Princeton University to study law. There he became involved with the school theatrical group, the Princeton Triangle Club as a theatrical designer and director, leaning further and further away from his law studies. After three years, Wright left the institution to focus on a design career in the theater.<sup>2</sup>

Wright married Mary Small Einstein in 1927. She would play a significant role in Wright's career (see Figure 2-1). Although Mary herself was also a designer, she spent her married life focused on supporting and promoting the work of her husband. Not only did she initially urge Wright to venture into industrial design, but she continued to guide him in his work, both creatively and financially. Coming from a wealthy and prominent family, she was influential during her husband's early unestablished career by using her social connections to help create a market for his products.<sup>3</sup>

In 1930, Russel Wright began this new phase of his career by designing three dimensional life size caricatures of prominent figures of the period such as Herbert Hoover

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<sup>1</sup> Ann Kerr, *The Collector's Encyclopedia of Russel Wright Designs* (Paducah, Kentucky: Collector Books, ©1990), 11.

<sup>2</sup> William J. Hennessey, *Russel Wright. American Designer*, Introduction by Russell Lynes (Cambridge, Massachusetts and London: The MIT Press, ©1983), 17.

<sup>3</sup> Ann Kerr, *Collector's Encyclopedia of Russel Wright*, 2<sup>nd</sup> ed. (Paducah, Kentucky: Collector Books, ©1998), 14.





2-1

“Russel and Mary Wright in the late 1940s with Iroquois Casual dinnerware”

William J. Hennessey, *Russel Wright. American Designer*, Introduction by Russell Lynes (Cambridge, Massachusetts and London: The MIT Press, c1983), 8.



and Greta Garbo.<sup>4</sup> These were not very successful on the market. Wright's next venture into small plaster and metal animals were decidedly more popular, selling well to a wealthy segment of the New York City population. From here, he ventured into bowls, glasses and other more functional objects made of spun pewter, and eventually turned instead to spun aluminum because it was easier to fashion and less expensive.<sup>5</sup> Wright's work with aluminum was highly successful, reaching specialty stores and also, to some extent, wider reaching department stores.

Wright's work up to this point sold almost exclusively in fashionable urban gift stores, in part because the products were basically hand manufactured on the first floor of a carriage house which the Wrights also called home. His partnership in 1935 with Irving Richards, a designer and businessman, however, helped changed the market for Wright's designs. Wright's design firm, Russel Wright, Inc. was renamed Russel Wright Accessories, and with Richards formed the Raymor Company to deal with the distribution of the end products.<sup>6</sup> A greater focus was placed on mass production to a wider middle class American audience who shopped at department stores like Gimbels and Bloomingdales.

The first result of this was Wright's American Modern dinnerware which was introduced in 1939, and was produced and continued to be popular for twenty years (see Figure 2-2). Manufactured by the Steubenville Pottery Company, this was Wright's first line of dinnerware. It was also to be his most widely accepted and successful design.<sup>7</sup> Although he was to create other well liked dinnerware lines such as Iroquois Casual and Highlight, they never reached the same level of popularity as American Modern.

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<sup>4</sup> Hennessey, op. cit. 18, 19.

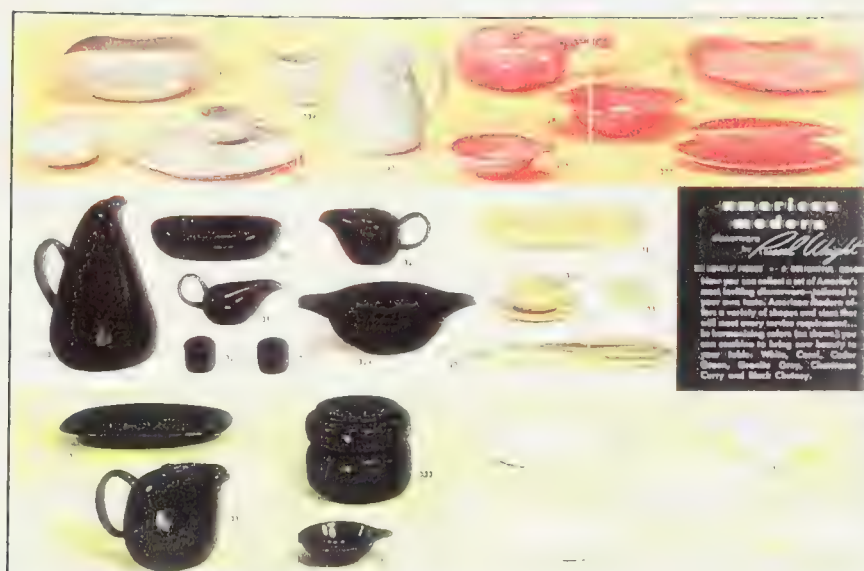
<sup>5</sup> Kerr, *Collector's Encyclopedia of Russel Wright*, op. cit., 15.

<sup>6</sup> Kerr, *The Collector's Encyclopedia of Russel Wright Designs*, op. cit., 12.

<sup>7</sup> Kerr, *Collector's Encyclopedia of Russel Wright*, op. cit., 121.







2-2

“Original American Modern dinnerware brochure”

Ann Kerr, *Collector's Encyclopedia of Russel Wright*, 2<sup>nd</sup> ed. (Paducah, Kentucky: Collector Books, c1998), 131.



Wright was pleased with the change of his audience to a much broader one, with whom he could play a more influential and socially conscious role. He wrote in a 1934 *American Home* article, “—because it is an honest expression of present-day living, modern design should interest all thinking Americans.”<sup>8</sup> He helped make this theory a reality, during the 1940s and 1950s, when his innovative designs were accessible and acceptable to a large number of American consumers. With the help of extensive advertising campaigns, his name was constantly seen by the public in newspapers and displays.<sup>9</sup> Wright became an American household name whose signature on his products was an indication of quality and familiarity for consumers.

Wright meant for his dinnerware designs to be used by a society with changing needs. With the growing household conveniences of an increasingly automated twentieth century society, such as the washing machine, refrigerator and vacuum cleaner, the presence of domestic help and the formality of traditional lifestyles were becoming outdated. The informality of Wright’s pieces such as the durable Iroquois Casual, which were meant to be used directly from stove to tabletop, fit well with the changing needs of Americans. Wright, and his designs and concepts of informal living came at the right time when people needed them.<sup>10</sup>

Wright’s influence was wide ranging. Although he received some criticism from his professional peers for “selling out” to mass consumerism, the reality of his good designs could not be overlooked. He was a frequent recipient of prestigious awards, participated in

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<sup>8</sup> Russel Wright, *American Home* 11, no. 2 (January 1934): 60.

<sup>9</sup> Kerr, *Collector’s Encyclopedia of Russel Wright*, op. cit., 19.

<sup>10</sup> *Ibid.*, 18.





important exhibits and in 1951 Wright became the President of the Society of Industrial Designers.<sup>11</sup> On the other hand, his work was welcomed by average Americans. Reflective of the wide range of Wright's influence, his designs and writings not only appeared in professional journals such as *Architectural Forum* and *Interiors*, but in popular magazines as well such as *Better Homes and Gardens* and *House Beautiful*.

Wright believed in embracing the modern age he lived in, taking advantage of new materials such as plastics for his designs. Wright pioneered the popularity of melamine dinnerware of this period. In 1945, at the beginning of the development for the use of melamine plastic resin for domestic dinnerware, he created the design for a prototype set which was commercially manufactured for General American Transportation in 1949 as the line Meladur. Later in the 1950s, two different plastic dinnerware lines of melamine, Residential and Flair were marketed.<sup>12</sup> Residential, manufactured by the Northern Industrial Chemical Company, was highly popular (see Figure 2-3). It also received the Good Design Award presented by the Museum of Modern Art in 1953 and 1954.<sup>13</sup>

In the late 1950s, a new line of food storage and service items of polyethylene for the home, designed by Wright and molded by Idealware, Inc., was introduced. Consisting of such combinations as salad, dessert and beverage sets, they were called Refrigerator-to-Tableware, because they were designed to be practical enough for storage, but attractive enough for the meal table.<sup>14</sup> This concept of using the same dishes in the kitchen and the dining room to save

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<sup>11</sup> Ann Kerr, *Russel Wright Dinnerware. Designs for the American Table* (Paducah, Kentucky: Collector Books), ©1985, 18.

<sup>12</sup> Hennessey, op. cit., 91.

<sup>13</sup> Kerr, *The Collector's Encyclopedia of Russel Wright Designs*, op. cit., 131.

<sup>14</sup> "Multi-purpose Housewares," *Modern Plastics* 36, no. 6 (February 1959): 184.





Table setting: copper penny Residential, Hull Pinch cutlery, American Modern pilsnets.

2-3

"Circa 1953 advertisement for Residential dinnerware"

Ann Kerr, *Collector's Encyclopedia of Russel Wright*, 2<sup>nd</sup> ed. (Paducah, Kentucky: Collector Books, c1998), 220.



time and energy was one Wright advocated throughout most of his career and practiced at Dragon Rock. Wright's interests in the use of plastic components would be apparent with the interior design of the house as well.

In addition to dinnerware, Wright designed a wide variety of household objects, such as rugs, lamps, radios and most significantly, furniture.<sup>15</sup> Wright put a great deal of energy into designing and promoting his furniture with the same intentions of advocating good modern designs for the general American public. For example, the American Modern furniture line of the 1930s, sold at Macy's and Marshall Field's department stores, was extremely popular and helped to make blonde wood a popular choice in homes across the country.<sup>16</sup>

Although Wright's work has Modernist tendencies, it was very different from the work of the Europeans at the Bauhaus. His was an American modernism, as the name of his most popular dinnerware suggests.<sup>17</sup> He was an advocate of American design, and felt that Americans were short changing themselves by worshipping the work of Europeans and should be looking at their own abundance of resources for inspiration. Wright glorified the diverse and rich American landscape, and twentieth century markers, such as the skyscraper, streamlined automobile, and even gas stations and movie palaces, that indicated that Americans had come into their own.<sup>18</sup>

The "American Way" project of the early 1940s that Wright started was a result of these interests in selling good American designs in this country. For this, he gathered the talents of 65 American designers, artists, craftsmen and manufacturers to contribute their

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<sup>15</sup> Hennessey, op. cit., 28.

<sup>16</sup> Kerr, *The Collector's Encyclopedia of Russel Wright Designs*, op. cit., 42.

<sup>17</sup> Kerr, *Russel Wright Dinnerware. Designs for the American Table*, op. cit., 15.

<sup>18</sup> Hennessey, op. cit., 47.





products in home furnishing displays that would be showcased in department stores across the nation. Unfortunately, it was difficult to coordinate this large number of people and organizations who were often small manufacturers who could not keep up with high consumer demands. When the United States entered World War II, war time supply shortages were the final blow to the project which came to an end.<sup>19</sup>

In 1950, Mary and Russel Wright wrote a popular book entitled *Mary and Russel Wright's Guide to Easier Living*, which encouraged readers to simplify their lives by letting go of outdated traditions and leading more casual and modern lifestyles. It was a continuation of a lifestyle concept Wright had already espoused with his designs. In a 1950 biographical sketch, he was quoted to say, "To facilitate the way of ease and informality of living by design, in the postwar world is my 'cause.'"<sup>20</sup> Wright wanted to make informal modern design and lifestyle a part of everyday American lives. The book also promoted the notion of a home reflecting individual tastes and needs. Thus, every home would be different, ideally using the Wrights' book only as a guide to customize one's home to suit individual needs. The collaborative efforts of this book was very reflective of the strong partnership between Russel and Mary, which unfortunately ended in 1952 upon Mary's death.

In the 1950s, began to incorporate simple organic designs into his dinnerware, such as with his White Clover dinnerware from 1951 with engraved clovers, and Esquire from 1956 with pattern names such as Grass, Queen Anne's Lace and Seeds.<sup>21</sup> These designs are reminiscent of Wright's inclusion of similar natural elements into the building components at

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<sup>19</sup> Kerr, *Collector's Encyclopedia of Russel Wright*, 288-89.

<sup>20</sup> Anna Rote, ed., *Current Biography. Who's News and Why. 1950* (New York: The H. W. Wilson Company, 1950), 629.

<sup>21</sup> Kerr, *The Collector's Encyclopedia of Russel Wright Designs*, op. cit., 78.



Dragon Rock. Grass and Queen Anne's lace, for example, are organic elements that are sandwiched between plastic panels at the house. Previously, Wright had denounced any extraneous ornamentation in his design. Some critics saw this as yet another example of his selling out for financial gain. It appears, however, that this was a result of Wright's growing interests in nature and his desire to incorporate it into his designs.

In the 1950s, Wright became involved with other interests. In 1955, for example, he was assigned by the United States State Department to go to Southeast Asia to give guidance on the effective production of handicrafts for export.<sup>22</sup> The influence of Wright's interests in this part of the world could be seen in his designs, such as with the Esquire dinnerware made in the late 1950s, which took on a more Oriental appearance.

By the 1960s, Wright became less actively involved in design work, formally closing his studio in 1968.<sup>23</sup> This was part of his decision to create Dragon Rock to live and work in semi-retirement in more natural and peaceful surroundings. By this time, Wright began to focus more of his energy on his strong interests in nature. He started by bringing the Garrison property back to its intended beauty after nearly a century of man's abuse through logging and mining. In the 1960s, he would become actively involved with the Garrison community to bring back the natural condition of the shoreline of the nearby Hudson River and would later become a consultant for the Bear Mountain State Park.<sup>24</sup> Wright lived at Dragon Rock until his death on December 23, 1976.

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<sup>22</sup> Hennessey, *op. cit.*, 20.

<sup>23</sup> *Ibid.*, 20.

<sup>24</sup> *Ibid.*, 82.





## **DRAGON ROCK**

Dragon Rock was completed in 1960 and is located in Garrison, New York, a town about 50 miles north of New York City. Russel and Mary Wright had purchased 79 acres of land, on which the house now stands, in 1941 as a retreat from the demands of living and working in the city. The Wrights stayed in a small house with a carriage house on the property, both of which still stand today (see Figure 3-1).<sup>25</sup> Previously the Wrights had progressed through several rented New York City addresses, until they finally purchased a city property at 221 East 48<sup>th</sup> Street. They later purchased 223 next door (see Figure 3-2). They occupied the entire townhouse, using the first floor as an office area and studio and the upper areas as personal living spaces, eventually creating an addition.<sup>26</sup> The top floor was often rented out. This New York City location was the result of success after decades of hard work by the Wrights.

In the late 1950s, Wright began planning for a permanent home on his Garrison property. Mary had already passed away and the pace of his design practice was slowing. In addition, he was increasingly becoming interested in nature. The option to live on a more full time basis in Garrison became a desirable option. The experimental house that was to be called Dragon Rock was an opportunity to fully apply his design and lifestyle theories (see Figure 3-3). Wright designed the house, and hired the New York City based architectural firm

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<sup>25</sup> Ann Wright, conversation with author, Garrison, New York, 17 October 1997.

<sup>26</sup> Hennessey, op. cit., 83.





3-1                    “House at Manitoga used by the Wrights before Dragon Rock was built”

Photograph by the author, 1997.





3-2

“221-23 East 48<sup>th</sup> Street in the late 1940s”

William J. Hennessey, *Russel Wright. American Designer*, Introduction by Russell Lynes (Cambridge, Massachusetts and London: The MIT Press, c1983), 83.







3-3 “Dragon Rock studio in the foreground and house in the background”

Photograph by the author, 1997.



of Leavitt, Henshell & Kawai, Architects, to make a set of architectural drawings for the house.<sup>27</sup> Wright was the interior designer and decorator as well. He designed many of the plastic components. Wright and his office staff created these final drawings.

Wright was not only interested in building Dragon Rock, but in repairing the land which was damaged from a century of logging and quarrying. He began working on the land almost immediately after purchasing it to create a controlled yet natural-looking setting for Dragon Rock. He called it Manitoga, an Algonquin word for “Place of the Great Spirit.”<sup>28</sup>

Wright’s fascination with the creative potentials of nature can be seen with the house as well. Dragon Rock was built into the quarry walls. Building materials inside the house are suggestive of the surrounding natural environment. The floors in the dining room, parts of the living room, and the stairs between these two rooms are clad with an uneven layer of rocks. The fireplace is also made of the same material. The unfinished oak ceiling beams and battens are exposed in the entrance hall, living room and dining room. There is a clear relationship between the natural surroundings and the interiors of the house.

Wright’s interests, however, extended to artificial materials as well. He made extensive use of synthetic plastics throughout the house. There are acrylic panels, decorative high-pressure laminates, fiberglass reinforced polyester panels and polystyrene drawers, to name a few examples. In some instances, there are obvious contrasts of materials. For example, some of the same wood beams at the ceiling mentioned above hold up exposed panels of polystyrene foam. There are also several acrylic panels sandwiching or embedding objects of nature, such as butterflies or leaves.

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<sup>27</sup> Russel Wright, “Garrison Slide Lecture,” April 1961, 5.

<sup>28</sup> Manitoga, Inc., “Manitoga,” [<http://www.highlands.com/Attractions/Manitoga.htm>], 1.



As with Wright's own industrial designs, the design and colorants of the plastics at Dragon Rock are simple, modern and neutral tones reflective of nature. For example, the decorative high-pressure laminate pieces used throughout the house, such as in the housekeeper's bedroom and the studio, are white, and those at the harem bathroom sink are light aqua, reflective of water.

With these architectural elements, Wright created seasons inside the house to complement those of nature through what he called "summer and winter dress." For example, in the dining room, the cabinet doors were made so that during the warmer seasons, they would be turned on their white decorative high-pressure laminate sides, and during the colder seasons, they would be turned to their red laminate sides. Also in this room, a green acrylic alien saucer-like chandelier containing Christmas tree bulbs and a nest of fiberglass hung during the summer dress<sup>29</sup> and a wrought iron chandelier with candles and a hidden spotlight hung for winter (see Figure 5-6). The seasonal variations also extended to the dinnerware patterns and colors used by Wright, which was strictly followed by him. For example, his everyday winter dishes were the rust colored Iroquois Casual dinnerware decorated with Garrison's shepherd's purse.<sup>30</sup>

Although Dragon Rock was very much a custom made home, it was also a reflection of the generation during which it was built. As with the typical new suburban tract house of the time, most if not all of the architectural plastic components in Dragon Rock were made from plastic materials that were fully developed and marketed during or after World War II. In

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<sup>29</sup> Gueft, Olga, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 106.

<sup>30</sup> Russel Wright, "Garrison Slide Lecture," op. cit., 18.





fact, Wright played a role in the changing habits of average Americans in whose households new and easier to maintain products such as plastics were fully welcomed. This was done, not only through his industrial designs, but also through *Mary and Russel Wright's Guide to Easier Living*. In the book, the Wrights advocated the “modern” home which was practical and simple in design, and thus easy to maintain. It was widely used and accepted in the United States, especially by young design conscious couples.<sup>31</sup> The Wrights wrote:

If you are so enamored of the charm of other centuries that you can stand the gruesome, tawdry look of such rooms each morning and then do the work of other centuries to restore order – then have such a room. But if you really want to save work, and to have a room that properly fulfills its intended functions, you'll have to give up your dreams of living in another age and enjoy your own twentieth century.<sup>32</sup>

The new, modern and practical image of plastics as a material that was easy to clean and required little maintenance, made it an attractive material for advocates of modern living such as the Wrights. Except for a few pieces in the harem bedroom, the Dragon Rock furniture and decoration did not have the fussiness of old-fashioned things.

In their book, the Wrights also advocated the use of built-in furniture, light fixtures and storage space to reduce clutter and surfaces that need to be cleaned. When writing of lighting options, for example, they noted, “In our opinion, whatever decoration value portable table lamps and floor lamps may have cannot compensate for their capacity for creating housework and mischief.”<sup>33</sup> Appropriately, most of the plastic components at Dragon Rock are part of built-in elements such as ceiling light panels, cabinets and bedroom furniture.

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<sup>31</sup> Arthur J. Pulos, *The American Design Adventure. 1940-1975* (Cambridge, Massachusetts: The MIT Press, ©1988), 66.

<sup>32</sup> Mary and Russel Wright, *Mary and Russel Wright's Guide to Easier Living* (New York: Simon and Schuster, ©1950, 1951), 67.

<sup>33</sup> *Ibid.*, 19.



Not only was the physical fabric of one's surroundings supposed to be casual, but so too lifestyle decisions in the home. Dining at Dragon Rock, for example, was to be done with a minimal amount of dishes and utensils, using stove to tabletop dinnerware of Wright's own designs. The steps involved in cooking and serving were also supposed to be simplified, as reflected in the kitchen and dining room design at Dragon Rock. The service counter island between these two rooms allows for simple access between the kitchen and the dining room, over an easy to maintain surface of decorative high-pressure laminate. In addition, there are shelves and drawers that open up to both rooms, again for easy access.

Despite Wright's advocacy of "casual living," visitors found the house difficult to use, with its uneven and awkward stone floors and demanding household rules. For example, the shelves and cabinets of the service counter were each labeled to hold very specific items. On the kitchen side, the coffee maker; electrical skillet; cocktail crackers; jams, jellies and relish; and bread and cake, were each designated a specific space.<sup>34</sup> While Wright was alive, this order and precision was strictly followed. As William J. Hennessey noted in his book, *Russel Wright. American Designer*, the irony was that Wright's principles of "easier living" actually made life more structured and difficult.

For Wright, this was not a major concern, because he created the environment at Dragon Rock for himself. As he and his wife Mary pointed out in their book, one home suited to the lifestyle and tastes of one family or individual may not necessary suit those of another. He felt this to be the case with Dragon Rock. He noted, "I have been pleased to overhear some visitors to the new house say that they wouldn't live in the house even if they were paid

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<sup>34</sup> Russel Wright. Papers, 1931-1965. Business records; architectural drawings; articles; lectures; book manuscripts; photographs; consumer and trade surveys; clay, plaster and paper models; and scrapbooks of clippings. George Arents Research Library for Special Collections, Syracuse University, Syracuse, New York.



to do so. The house was designed for use by me and my family.”<sup>35</sup> The house and the rules that went with it were custom made to suite his particular needs.

Wright also did not see the house as being a static art piece. Throughout most of the design stages, the house was referred to as either the “Russel Wright House” or “Experimental House.”<sup>36</sup> The latter name is appropriate since Wright used the interiors of the house to apply different new design concepts and materials and, in fact, did so for the next fifteen years he lived in the house. The experimental nature of Dragon Rock perhaps explains the failure of some of the components in the house. The polystyrene drawers found in the dining room, kitchen, housekeeper’s bedroom and studio, for example, are difficult to open and close. Several of the fiberglass reinforced polyester panels have deformed due to a lack of structural support resulting from flaws in initial design and application.

The house is not only the site most associated with Russel Wright, but also remains an excellent example of the application of this significant designer’s principles. Its preservation would help future generations understand why Wright was such an important player in shaping popular twentieth century American tastes.

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<sup>35</sup> Russel Wright, “Garrison Slide Lecture,” op. cit., 2.

<sup>36</sup>Russel Wright, Papers, 1931-1965, op. cit.





## THE STORY OF PLASTICS

### 4.1 What are Plastics?

There are basically two classes of plastics, thermoplastic and thermoset. Thermoplastics are formed by heat, and if reheated they soften and can be remolded again. There is no chemical change involved. This ease of molding has made thermoplastics popular. Acrylic and polystyrene are two examples of this type that are used at Dragon Rock. Thermosets, on the other hand, undergo a chemical reaction during the molding process so that if reheated, they would scorch before melting.<sup>37</sup> Generally, they are harder and more brittle than thermoplastics. Because they will not revert back to a liquid state, thermoset plastics are sometimes used in applications where heat is a factor. Polyester and melamine are thermosets that are frequently found in Wright's house.

The length and types of polymer chains that make up the thermoplastics and thermosets determine their properties. The former have linear chains whereas the latter have three-dimensional cross-linked networks of relatively short chains.<sup>38</sup> When plastics deteriorate, it is the result of the breakdown of these chains. However, because of the more numerous cross linking of the thermoset networks, they can withstand greater negative impact and thus are more stable.<sup>39</sup>

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<sup>37</sup> Ronald J. Baird, *Industrial Plastics. Basic Chemistry, Major Resins, Modern Industrial Processes* (South Holland, Illinois: The Goodheart-Willcox Co., Inc., 1976), 21.

<sup>38</sup> John Morgan, *Conservation of Plastics: An Introduction to their History, Manufacture, Deterioration, Identification and Care* (London: The Conservation Unit of the Museum & Galleries Commission and the Plastic Historical Society, ©1991), 12.

<sup>39</sup> *Ibid.*, 13.



All synthetic plastics are similar in that they originate from common raw materials such as coal, air, water, petroleum, limestone, salt and sulfur.<sup>40</sup> These materials undergo chemical changes to create polymers or resins which are formed into plastic components. A significant advantage of using plastics is their versatility. Their synthetic nature allows for an almost endless variety of materials. The desired properties can be manipulated to suit almost any needs.

The primary component in plastic objects is the resin. Base resins include acrylic, polyester and polystyrene. Other ingredients, however, are added during the manufacturing process to manipulate the properties of the finished plastic. Popular additives are colorants, stabilizers, fillers and plasticizers. Colorants are used to change or add color to the plastic component. There are basically three different types of colorants, organic pigments, inorganic pigments and dyestuffs.<sup>41</sup> Stabilizers give thermoplastics greater resistance to the effects of deterioration from heat, light and oxidation.<sup>42</sup> Fillers can serve several purposes. They may lower the cost, add body, speed the curing time, reduce stressing and crazing, increase thermal endurance, and add strength.<sup>43</sup> Fiberglass is a common filler at Dragon Rock. Plasticizers make thermoplastics more workable; without them, most resins cannot be properly processed.<sup>44</sup> In addition, they make flexible final materials.

There are basically three stages in plastics manufacture. First, chemical companies produce resins from the basic raw materials and turn them into various forms such as sheet,

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<sup>40</sup> J. Harry du Bois and Frederick W. John, *Plastics* (New York: Reinhold Publishing Corporation, ©1967), 8.

<sup>41</sup> "How to Choose the Correct Colorant," *Modern Plastics* 37, no. 8 (April 1960): 81.

<sup>42</sup> du Bois and John, op. cit., 36.

<sup>43</sup> Ibid., 18.

<sup>44</sup> Nicholas P. Cheremisinoff and Paul N. Cheremisinoff, *Fiberglass Reinforced Plastics* (Park Ridge, New Jersey: Noyes Publications, ©1995), 23.



powder and flakes.<sup>45</sup> The Monsanto Chemical Company is an example of a well known resin manufacturer whose material can be found at Dragon Rock. The resins are then taken to a processor who transforms the material into either solid or semi-solid form. There are basically six different methods for processing: 1) molding, 2) extruding, 3) coating, 4) laminating, 5) reinforced plastic producing, and 6) film and sheet producing.<sup>46</sup> Of these, all except the last are represented at Dragon Rock. The final stage is performed by the fabricator who gives the item its final shape. In reality, these three stages often overlap, with one company completing two and sometimes three of the manufacturer levels.

Plastic resins and products often become identified by a few trade names. The acrylic resin Plexiglas® manufactured by Rohm and Haas and the decorative high-pressure laminate Formica® manufactured by the Formica Corporation are typical examples.

## **4.2 A Short History of Synthetic Plastics**

The popular perception of plastics is that of a synthetic twentieth century material which blossomed after World War II. In reality, natural plastics, such as shellac, horn and gutta percha, have been utilized for centuries, and the history of the plastics industry, as it exists today in the United States, can actually be traced back to the nineteenth century. The first such plastic material was cellulose nitrate, better known as Celluloid, which was created by John Wesley Hyatt of Albany, New York, and first commercially produced in 1868 (see Figure 4-1). This was a semi-synthetic plastic. In other words, made primarily of natural cellulose and camphor, which acted as a chemical modifier or plasticizer,<sup>47</sup> Celluloid was a chemically

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<sup>45</sup> Ibid., 26.

<sup>46</sup> Herbert R. Simonds and James M. Church, *Concise Guide to Plastics*, 2<sup>nd</sup> ed. (New York: Reinhold Publishing Corporation, ©1963), 7-8.

<sup>47</sup> Robert V. Milby, *Plastics Technology* (New York: McGraw-Hill Book Company, ©1973), 2-3.







4-1

“A shellac back mirror is to the very left. The other three items, mirror, comb and blown hair container were popular applications for Celluloid.”

J. Harry du Bois, *Plastics History U.S.A.* (Boston: Cahners Books, c1972), 46.



modified natural polymer.<sup>48</sup> It was problematic, however, since as a thermoset, it could not be molded. Instead, it was generally cut into thin slices from a block of the material, and was made into shapes by hot forming or blow molding.<sup>49</sup> Combs and boxes are examples of objects that were made of Celluloid. This material served an imitative purpose, giving the appearance of ivory, horn or tortoiseshell, whose supply was diminishing but still very much in demand during the second half of the nineteenth century and early part of the following century. One of its most popular uses well into the twentieth century was for motion picture film. It was, however, highly flammable and inevitably a hazard to use with the hot lamps of the film projector.<sup>50</sup> Celluloid continued to be used, even after World War II, although less of it was used after the introduction of the similar but less flammable cellulose acetate into the market.<sup>51</sup>

Phenolic resins, developed and introduced to the American public by Dr. Leo H. Baekeland in 1909, were the first fully synthetic plastics. Named Bakelite®, phenol formaldehyde was the first moldable synthetic plastic. Bakelite® was applied to several significant and everyday uses, such as jewelry, telephones and hardware (see Figure 4-2). It was also initially the only resin for high-pressure laminates such as Micarta® made by the Westinghouse Electric and Manufacturing Company and Formica®.<sup>52</sup> There were limitations

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<sup>48</sup> Morgan, op. cit., 12.

<sup>49</sup> Ibid., 21.

<sup>50</sup> Baird, op. cit., 9.

<sup>51</sup> J. Harry du Bois, *Plastics History U.S.A.* (Boston: Cahners Books, ©1972), 266.

<sup>52</sup> George Lubin, ed., *Handbook of Fiberglass and Advanced Plastics Composites* (New York: Van Nostrand Reinhold Company, ©1969), 5.





4-2

“Typical phenolic moldings of the 1930s”

Jeffrey L. Meikle, *American Plastics: A Cultural History* (New Brunswick, New Jersey: Rutgers University Press, c1995), Plate 10.





to phenol formaldehyde; as a result of the high pressure and heat necessary to mold the resin, it was only available in darker colors.<sup>53</sup>

By the 1930s, other resins such as acrylic and polystyrene, were being actively developed and would eventually help plastics become established as a serious industrial material in the United States. The timing of the development of newer plastics was fortunate for the significant role they would play in the upcoming World War. It was with the material demands and scarcities of the Second World War on the United States during the first half of the 1940s, that plastics really came to the foreground. These newer plastics were not fully utilized until there was a great need for light weight and strong materials for aircraft and other war time uses.<sup>54</sup>

After the War, the demand transferred to civilian needs. The growth of the plastic industry, however, was not immediately successful. The accommodation of increasing demands in a relatively new field led to the production of substandard materials, sometimes made from scraps leftover from military use, which initially turned many of the public away from plastics. Problems lay not with the proven reliable Celluloid and phenolics like Bakelite®, but with the relatively new materials such as acrylics and low-pressure reinforced plastics.<sup>55</sup> By the 1950s, however, these issues were resolved with increased standards and regulations, and plastic components were everywhere in the American home and business.

This increasingly prosperous post-war society was eager to start anew, letting go of an immediate past burdened by the Great Depression and a major war the decades before, and

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<sup>53</sup> Sharon Blank, "An Introduction to Plastics and Rubbers in Collections," *Studies in Conservation* 35, no. 2 (May 1990): 60.

<sup>54</sup> Jeffrey L. Meikle, *American Plastic. A Cultural History* (New Brunswick, New Jersey: Rutgers University Press, ©1995), 125.

<sup>55</sup> *Ibid.*, 166.



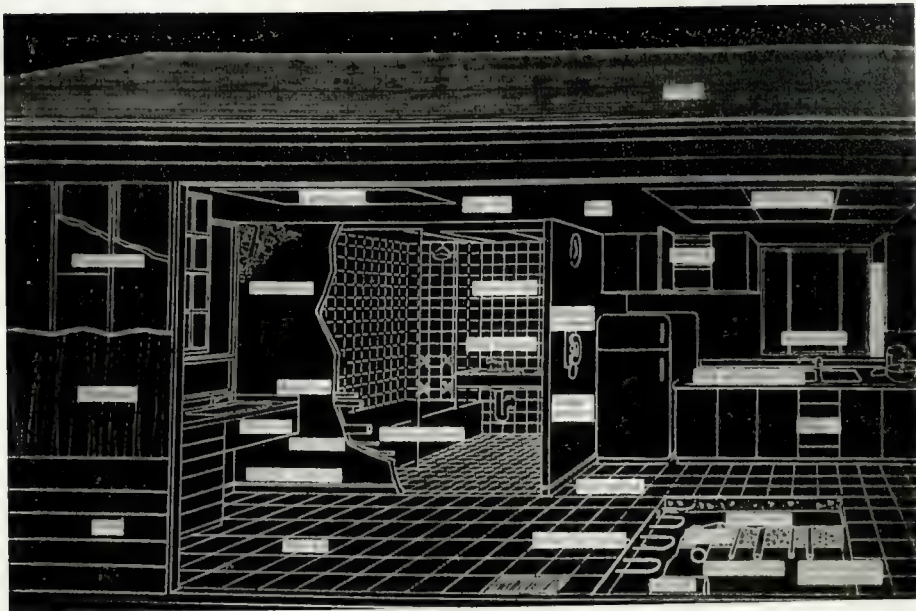
grasping the promises of a brighter future. The age of mass consumerism that was to come during the second half of the 1950s welcomed new, bright and colorful synthetic materials like plastics (see Figure 4-3). The thermoplastics made available to the public after the war suited these new needs. Some of plastics of the decades before, such as phenol formaldehyde, came only in dark colors due to the processing method. This does not mean that traditional thermosets such as phenolic resins were no longer being used. Their dominance in the postwar plastics industry, however, was overtaken by the new thermoplastics such as polyester and polyethylene.

Plastics also fit into the changing lifestyles of Americans after the war. First, they expected to live better easier lives than previous generations. By relying on high technology, it was hoped that everything could be operated with ease at the touch of a button and with names like Cruise-o-matic and Wash-o-matic. Plastics fit into this ideal, with their easily cleaned and maintained surfaces which could be simply wiped down. This suited both the housewife of suburban America as well as Russel and Mary Wright, who advocated ways to cut down on time wasted in the household. Secondly, Americans became more interested in being do-it-yourselfers around the house. In other words, they were taking on projects at home, such as installing new kitchen counter tops or patio roofs by themselves instead of hiring out. The ease of cutting, shaping and installing plastic components, such as decorative high-pressure laminates and fiberglass reinforced polyester panels, helped make this possible. Wright himself wrote, “Our large-scale and growing tradition of ‘do-it-yourselfer’ is helping us to individualize our homes,”<sup>56</sup> thus seeing this as a means of self expression for typical American homeowners.

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<sup>56</sup> Russel Wright, “Garrison Slide Lecture,” op. cit., 1.





4-3

“A wide array of plastics applications available in the American home by the mid-1950s”

“Look How Many Ways You Can Now Use... Plastics!,” *House & Home* 10 (September 1956): 118,





Although not comprising anywhere near a majority of the building materials in a typical home, plastics could be found in almost all possible non-structural applications. Both popular magazines and trade journals recognized this growth with such article titles as “Look How Many Ways You Can Now Use... Plastics!”<sup>57</sup> and “A Conventional House – and Plastics are Everywhere!”<sup>58</sup> While other more conventional building materials such as wood and stone were becoming more expensive, plastic prices were getting lower as the technology to make them became more advanced. The greater level of production also reduced costs. According to *Modern Plastics*, the plastics found at Dragon Rock such as polystyrene cost \$ .68 a pound in 1938 and \$ .25 in 1958 and polyvinyl chloride cost \$ .56 a pound in 1938 and \$ .235 in 1958.<sup>59</sup> Use by Americans was fast growing during the period Dragon Rock was built. “In 1940 U.S. per capita consumption of plastics was at 2 pounds per person, in 1960 at 33 pounds, in 1964 at 53 pounds, and in 1966 at 68 pounds.”<sup>60</sup> The belief was that the use of plastics would only increase over time.

In fact, in post-war America, some designers and press members of the 1940s and 1950s either whimsically or seriously predicted a future where almost everything manmade would be made of plastic. In fact, the concept that a house made almost completely of plastic could be built existed. The best known example of this was the Monsanto House of the Future designed and constructed for the Monsanto Chemical Company mainly by Albert

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<sup>57</sup> “Look How Many Ways you Can Now Use... Plastics!” *House & Home* 10 (September 1956): 118-35.

<sup>58</sup> “A Conventional House – and Plastics are Everywhere!” *Modern Plastics* 40, no. 4 (December 1962): 94-97, 183-84.

<sup>59</sup> “Plastics in 1958: Slow Start Strong Finish,” *Modern Plastics* 36, no. 5 (January 1959): 79.

<sup>60</sup> Dominick V. Rosato, et. al., *Markets for Plastics* (New York: Van Nostrand Reinhold Company, ©1969), 3.



G. H. Dietz, Richard W. Hamilton and Marvin Goody (see Figure 4-4).<sup>61</sup> Only one house was actually built. Constructed in 1957, it was located in Tomorrow Land at Disneyland in Anaheim, California. It was cross-shaped in plan, with a 16 foot square core and four 16 foot square cantilevered wings made of fiberglass reinforced polyester.<sup>62</sup> Quite appropriately, it was seen as the house of tomorrow which was to be clean and automated, thanks in part to the miracle of plastics which was throughout the house.

Part of the reason that houses like this never really played a regular part in American culture may lie in the fact that Americans were willing to stray away from the traditional, and towards the futuristic modern designs of the post-war years to only a limited extent. The Monsanto House and others like it were far too different from the standard and familiar appearance that most popular tract housing adopted. Modern designs, such as the exterior glass walled case study houses in southern California of the same period, failed to become the norm for much the same reasons.

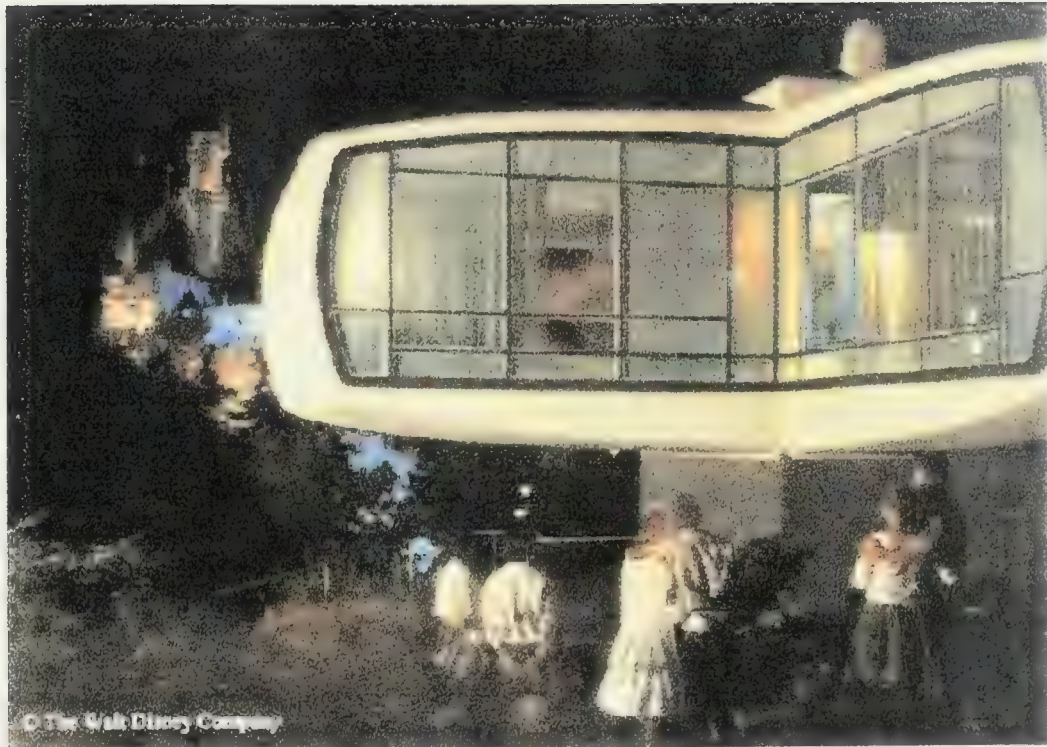
In fact, even the structural application of plastics such as fiberglass reinforced polyester walls, has never been widely applied. Still, plastics have become a regular part of everyday domestic living; they are a significant force in interior design and other non-structural elements in architecture. From the smooth and clean decorative high-pressure laminate counters in the kitchen to the fiberglass reinforced corrugated plastic sheltering the porch in the backyard, they are everywhere.

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<sup>61</sup> Meikle, op. cit., 205-06.

<sup>62</sup> "House of the Future Built Before Its Time," *Engineering News-Record* 158, no. 25 (20 June 1957): 28.





4-4 “Monsanto House of the Future at Disneyland in Anaheim, California, 1957-68”

[<http://www.lido.com/disney/parks/di...es/monsanto-house-of-the-future.jpg>].





## **DESCRIPTION AND IDENTIFICATION OF THE INTERIOR ARCHITECTURAL PLASTICS AT DRAGON ROCK**

Russel Wright was a significant American industrial designer who helped to shape the way Americans lived during the middle of the twentieth century. An architectural document of his theories and ideas exist at Dragon Rock. Its preservation would mean that future generations would be better able to understand Wright's revolutionary work. Unfortunately, the house is today in a very precarious situation. Decades of environmental impact from such sources as sunlight and moisture, as well as physical abrasion and neglect have had their way with the stability of the structure and material of Dragon Rock. The plastic components in the house have also been subjected to these abuses. By documenting each plastic element with a materials and condition survey and analyzing the results, it is hoped that the results of this work can be used as part of the overall future maintenance and preservation of Dragon Rock.

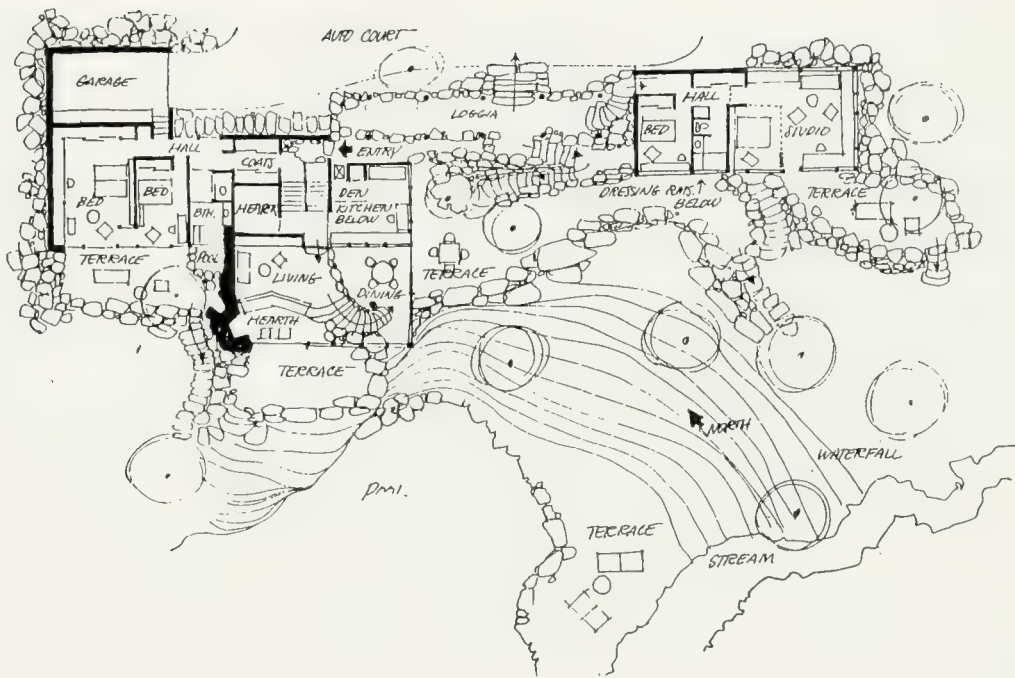
### **5.1 The Rooms at Dragon Rock**

Dragon Rock consists of two buildings connected by a portico (see Figure 5-1). The main structure consists of the public spaces such as the living room and dining room, as well as the private bedroom spaces for Annie and the housekeeper, Diana Boyce, called "The Harem." There are seven different levels in this building.<sup>63</sup> The second smaller building is the "studio." This is where Wright had his living and work quarters.

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<sup>63</sup> Russel Wright, "Garrison Slide Lecture," op. cit., 9.





5-1

# "Dragon Rock floor plan"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 103.



Upon entering the main house, the first space entered is the **house entry hall** (see Figure 5-2). For the purposes of this paper, the entry hall consists of not only the immediate entrance space, but also the entry spaces for the closets, den-balcony and lavatory-bar, which are adjacent. Approaching the more public spaces, there is the **den-balcony** (see Figure 5-3), which Wright also called the family room. This was his favorite room.<sup>64</sup> The **lavatory-bar** (see Figure 5-4) had multi-purposes of being a lavatory, bar and a place to cut and prepare flowers. The two level **living room** (see Figure 5-5) has an extensive southwesterly view of the manmade pool outside and has a massive fireplace that can hold four foot logs upright.<sup>65</sup> A set of stairs made of irregular rocks connects the living room with the **dining room** (see Figure 5-6) below. This room also has an extensive view of the natural surroundings outside, with its two story level of Thermopane windows. Because of the irregular stone floor, Wright had specially made fiberglass reinforced polyester chairs with three legs made by Herman Miller.<sup>66</sup> The **kitchen** (see Figure 5-7) adjacent to the dining room had a wide array of storage spaces that were each meant to hold specific food items and electrical appliances. For the purposes of this study, the adjacent utility area as well as the staircase leading up to the house entry hall is considered the kitchen as well.

“The Harem,” or the private half of the main house, begins with the **harem bedroom hall** (see Figure 5-8) which is a continuation of the closet area of the house entry hall. The first space encountered is the **harem bathroom hall** which leads to the **harem toilet** which is separate from the **harem bathroom** (see Figure 5-9). The bathroom takes advantage of its

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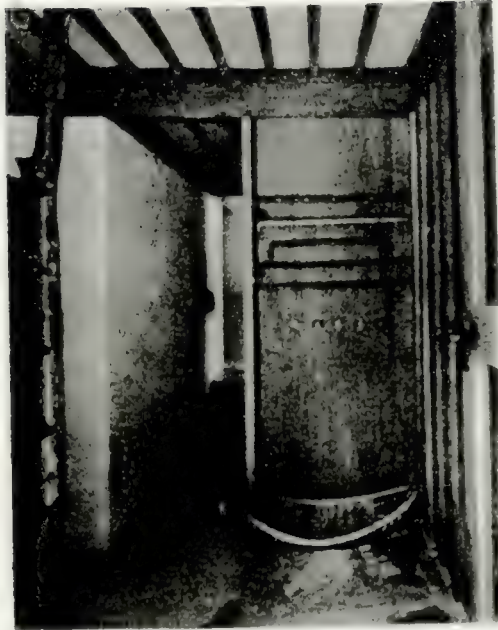
<sup>64</sup> Ibid., 14.

<sup>65</sup> Ibid., 16.

<sup>66</sup> Gueft, op. cit., 107.







5-2 "House entry hall, circa 1961"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 104.





5-3

“Den-balcony, circa 1961”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 107.





5-4

“Lavatory-bar, circa 1961”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 108.





5-5

“Living room, circa 1961”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 107.







5-6

“Dining room, circa 1961. ‘Winter dress’ is on the left and ‘summer dress is on the right’”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 106.





5-7

“Kitchen, circa 1962. Margaret Spader is at the very left with Annie Wright and a few of her friends.”

“A Wonderful House to Live In,” *Life* 52, no. 11 (16 March 1962): 79.





5-8 "Harem bedroom hall, circa 1961"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 108.







5-9

“Harem bathroom, circa 1962. Annie taking a soak.”

“A Wonderful House to Live In,” *Life* 52, no. 11 (16 March 1962): 83.



southern exposure with French doors. There is a sunken tub adjacent to the doors. The **housekeeper's bedroom** (see Figure 5-10) is next to **Annie's bedroom** (see Figure 5-11), and are directly connected via a decorative high-pressure laminate clad door. The rooms were given feminine decor. The housekeeper's bedroom, for example, had lavender colored fabric stapled to the walls and ceiling, and the accessories were Oriental, English and American antiques.<sup>67</sup> The walls and ceiling of Annie's room had pink metallic paper and some Victorian style furniture. The **garage** was converted to an extension of Annie's bedroom in 1973 by Russel Wright.

The studio is entered via a **studio entry hall**, which, for the purposes of this paper, consists of its entire length leading to the main studio room. The **studio bedroom** (see Figure 5-12) was intended as a guest room. The **studio bathroom hall** leads to a **studio toilet** which is separate from the **studio bathroom** (see Figure 5-13). The main room of the building is the **studio** (see Figure 5-14). There is a decidedly more masculine feel in these spaces as compared to "The Harem" in the main house.

## 5.2 Materials and Condition Survey

A materials and condition survey form was completed for each plastic component (see Appendix). There are a total of 378 plastic components in the house that are part of Wright's designs. The survey gathered detailed information for identifying, noting conditions and making brief conservation recommendations, of all the interior architectural plastic components. Of the plastics that are no longer located where they were originally installed but are stored elsewhere, the two more significant ones that could be found by the author, the door knob of the harem bathroom and the acrylic paneled cabinet door of the den-balcony

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<sup>67</sup> Russel Wright, "Garrison Slide Lecture," op. cit., 21.





5-10 "Housekeeper's bedroom, circa 1961"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 109.





5-11 "Annie's bedroom, circa 1961"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 109.







5-12

“Studio bedroom, circa 1961”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 111.





5-13

"Studio bathroom, circa 1961"

Olga Gueft, "Russel Wright's Dragon Rock," *Interiors* 121, no. 2 (September 1961): 111.





5-14

“Studio, circa 1961”

Olga Gueft, “Russel Wright’s Dragon Rock,” *Interiors* 121, no. 2 (September 1961): 110.





were also included in this survey. The known dislocated and missing elements are listed at the end of this chapter. The switches, dimmer dials and plates manufactured by the Minneapolis-Honeywell Regulator Company, also listed in a separate chart. Synthetic fabrics and free standing furniture were not included in the survey.

Two numbering systems are used for the survey forms, one to identify the room and the other to identify the component. The **room number** has two parts. First, a letter identifies the building, whether house or studio, where the room is located. Second, there is a number designated to that particular room within the building. The **component number** has two to three parts. First, abbreviations indicate the room the component is located. Second, a number is given for each component, which is oftentimes part of a larger grouping of other similar or identical elements. For example, the dresser in the housekeeper's bedroom has several decorative high-pressure laminate pieces which are all given the same number. For components such as these, there is a third level of identification, which is a lowercase letter that distinguishes it from the other similar components in the grouping. The following indicates in detail the numbering system described above. The abbreviations and numbers for the room identification are given in bold, while those for component identification are in italics:

<b>ROOM AND COMPONENT IDENTIFICATION ABBREVIATIONS AND NUMBERS FOR DRAGON ROCK</b>	
<b>House (H)</b>	house entry hall <b>(1)</b> ( <i>HEH</i> ); den-balcony <b>(2)</b> ( <i>DB</i> ); lavatory-bar <b>(3)</b> ( <i>LB</i> ); living room <b>(4)</b> ( <i>LR</i> ); dining room <b>(5)</b> ( <i>DR</i> ); kitchen <b>(6)</b> ( <i>K</i> ); harem bedroom hall <b>(7)</b> ( <i>HBH</i> ); harem toilet/bathroom hall <b>(8)</b> ( <i>HTBH</i> ); harem bathroom <b>(9)</b> ( <i>HBa</i> ); housekeeper's bedroom <b>(10)</b> ( <i>HBe</i> ); Annie's bedroom <b>(11)</b> ( <i>AB</i> ); garage <b>(12)</b> ( <i>G</i> )
<b>Studio (S)</b>	studio entry hall <b>(1)</b> ( <i>SEH</i> ); studio bedroom <b>(2)</b> ( <i>SBe</i> ); studio toilet/bathroom hall <b>(3)</b> ( <i>STBH</i> ); studio bathroom <b>(4)</b> ( <i>SBa</i> ); studio <b>(5)</b> ( <i>S</i> )



### 5.3 Identification Process for the Dragon Rock Plastics

The plastics at Dragon Rock were identified on four levels: 1) resin type (and reinforcements when applicable), 2) resin manufacturer and trade name, 3) processor and trade name, and 4) fabricator and trade name. In many cases, these roles did not stand alone. For example, the Filon Corporation that made reinforced plastic panels manufactured its own resin; New Castle Products, Inc. processed the polyvinyl chloride coated fabric of their Modernfold® accordion-fold doors and also fabricated and installed their doors. Rarely were all of the aspects for identification realized. In some cases, the plastic type may have been identified, but the manufacturers could not be, due to a lack of written records. Unfortunately, Wright worked on his Dragon Rock project primarily on his own.<sup>68</sup> Colorants, stabilizers, plasticizers and other additives of the Dragon Rock plastic components were not identified for this investigation as this would require chemical analyses which would not only be destructive, but also be beyond the scope of this paper.

The plastic components at Dragon Rock were identified first through an article about the newly completed house in an *Interiors* journal article published in September, 1961. Throughout the article, there are references to manufacturers and additional information for some of the materials used in the house and, at the end of the article, there is a list entitled “Contributors to Russel Wright House.” By the time Wright began work with the interior design, the house construction costs had gone over budget.<sup>69</sup> In order to help defray a few of the expenses, Wright began calling Dragon Rock an “Experimental House,” and got in touch

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<sup>68</sup> Herbert Honig, telephone conversation with author, New York, New York, 6 October 1997.

<sup>69</sup> Ann Wright, conversation with author, Garrison, New York.



with some manufacturers to donate their products.<sup>70</sup> In return, he promised to advertise the use of their material in the house.

Other primary source materials were consulted. This included typewritten notes for a slide presentation Russel Wright had written on the house. In addition, Wright's business papers, which are all housed at the George Arents Research Library for Special Collections located at Syracuse University, were used. There were some helpful material in the collection, which included drawings, letters and business contracts. Unfortunately, although some original interior plans and drawings, as well as correspondence with contractors and the architects from the construction of the house were found, no letters and other business records dealing with the interior design were located.

Contemporary trade journals such as *Modern Plastics* and *House and Home*, and popular magazines such as *House Beautiful* and *Better Homes and Gardens* were useful for not only finding illustrations of specific plastic components at Dragon Rock, but also for placing them in context of the time period they were being used. Also effective for these purposes were trade catalogs, some taken from the pages of the *Architectural Catalog File* of the Sweet's Catalog from 1965.

Interestingly, some contemporary and later articles and trade catalogs presented designs similar or identical to some of the components in the house. An example of this is the sliding door between the harem bedroom hall and the bathroom hall, which was found in a an issue of *Good Housekeeping* from 1960. As often happens, it is likely that Wright's designs were picked up by manufacturers for the mass market, without giving credit to the original designer. This issue needs to be further studied.

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<sup>70</sup> Margaret Spader, written correspondence with author, 27 October 1997.





Visual and tactile investigations were made of the actual components. These examinations were useful not only for identification, but were also necessary to determine component condition. For some plastics at Dragon Rock, the exact plastic type could not be identified without further testing and lab analysis, which would unfortunately be destructive. This would contradict the ultimate goal of conservation for the plastic components of the house. For example, in one simple test, either heat or flame would be necessary for identification through the type of odor released.<sup>71</sup> The practice can also be hazardous to the tester's health since some plastics can emit toxic fumes. Because of the heavily processed nature of the plastics and presence of unknown additives, this subjective testing method is unreliable.<sup>72</sup>

## 5.4 Typology of the Dragon Rock Plastics

Decorative high-pressure laminate, acrylic, glass reinforced polyester and polystyrene are the most plentiful plastic examples at Dragon Rock. All the types found in the house are listed and described below, in a general order based on their abundance:

### 5.4.1 Decorative High-Pressure Laminate

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
House entry hall	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for plant holder (HEH.5.a-e)</li> </ul>
Den-balcony	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for drop-leaf desk (DB.4.a-d)</li> </ul>
Lavatory-bar	<ul style="list-style-type: none"> <li>• Glossy black cladding for toilet tank (LB.2.a-e)</li> <li>• Glossy black cladding for sink counter (LB.3)</li> <li>• Glossy black wall panel (LB.4.a, b)</li> <li>• Glossy black cladding for counter (LB.6.a, b)</li> </ul>
Living room	<ul style="list-style-type: none"> <li>• Semi-glossy light red with a reddish brown lacquer coating cladding for cabinet doors (LR.1.a-c)</li> <li>• Semi-glossy white cladding for cabinet doors (LR.2.a, b)</li> </ul>
Dining room	<ul style="list-style-type: none"> <li>• Semi-glossy light red with a reddish brown lacquer coating cladding for cabinet doors (DR.1.a-e)</li> <li>• Semi-glossy white cladding for cabinet doors (DR.2.a-e)</li> </ul>

<sup>71</sup> Blank, "An Introduction to Plastics and Rubbers in Collections," op. cit., 55.

<sup>72</sup> Sharon Blank and Don Salc, Jr., "Fills and Adhesives for Polymers," bibliography by Lori van Handel, unpublished paper.





<b>Kitchen</b>	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for the bottom of the lower shelf of the counterbalanced cabinet (K.2.a, b)</li> <li>• Semi-glossy white cladding for sink and island counter top (K.3.a, b)</li> <li>• Semi-glossy white cladding for the bottom of the upper shelf of the counterbalanced cabinet (K.6.a-c)</li> <li>• Semi-glossy white cladding for bottom of the dumbwaiter (K.9)</li> <li>• White sliding cabinet doors (K.10.a, b)</li> <li>• Semi-glossy white liquor cabinet door (K.11)</li> <li>• Semi-glossy white cladding for shelves (K.12.a-nn)</li> <li>• Semi-glossy white wall panel (K.13.a, b)</li> </ul>
<b>Housekeeper's bedroom</b>	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for dressing table (HBe.1.a-h)</li> <li>• Semi-glossy white cladding for shelves (HBe.4.a-e; HBe.5.a-e)</li> <li>• Semi-glossy white cladding for two bedside tables (HBe.6.a-l; HBe.9.a-j)</li> <li>• Semi-glossy white cladding for dresser (HBe.12.a-l)</li> <li>• Semi-glossy white cladding for door to Annie's bedroom (HBe.16)</li> <li>• Semi-glossy white cladding for door to harem bedroom hall (HBe.17.a-d)</li> </ul>
<b>Annie's bedroom</b>	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for door to harem entry hall (AB.3)</li> </ul>
<b>Garage</b>	<ul style="list-style-type: none"> <li>• White cladding for top of built-in table (G.1)</li> </ul>
<b>Studio</b>	<ul style="list-style-type: none"> <li>• Semi-glossy white cladding for built-in counter (S.3.a-e)</li> </ul>

**General Description:** Decorative high-pressure laminates are composed of several sheets of paper which have been impregnated with thermoset plastic resins. The Dragon Rock laminates are typical in that they are basically made up of three layers. The core, a multi-layer of strong kraft paper saturated with phenol formaldehyde resin, is what gives the laminate strength and dimensional stability. The next layer above, saturated with melamine resin,<sup>73</sup> is the decorative sheet that gives the laminate its physical appearance. For example, this is the layer that gives the white color of the built-in furniture in the housekeeper's bedroom. The very top layer is a protective sheet which is also impregnated with melamine resin.<sup>74</sup> High pressures of 1,200 to 2,500 psi are then applied<sup>75</sup> to create the final product which is about

<sup>73</sup> The melamine resin is a result of a condensation of melamine and formaldehyde. It was initially discovered in 1834 by a Swiss scientist, and was reintroduced in 1937. It had its most well-known application for dinnerware in the 1950s.

<sup>74</sup> James M. O'Neill, *Fabricating with Formica. Procedures for Working with Plastic Laminate* (Milwaukee: The Bruce Publishing Company, ©1958), 1.

<sup>75</sup> du Bois, op. cit., 266.



1/16 inch thick. Laminates have extremely hard surfaces with high resistance to heat and moisture. Thus, they have been successfully used as counters in kitchens and bathrooms.

**General History:** The Westinghouse Electric and Manufacturing Company began making phenolic laminates in 1910 by impregnating heavy canvas with Bakelite® resin. At Westinghouse, Daniel J. O'Connor made the first laminate sheet using paper in 1913. In that same year, he and a fellow employee, Herbert A. Faber, left their company to create The Formica Insulation Company.<sup>76</sup> Later, Westinghouse would make use of the high-pressure laminate technology with their Micarta® line.

For about the first decade of its existence, this laminate was only being used for industrial purposes, such as for insulation. Appropriately, laminates were dark and homogeneous in color. However, in the mid-1920s, Formica began experimenting by using a wood grain-like lithograph for a decorative layer.<sup>77</sup> By the 1930s, a decorative layer was added, and eventually the thio resin was replaced by melamine for the top resin impregnated layers, which allowed for greater color range, and better appearance, workability and durability.<sup>78</sup> The real growth of the decorative application of high-pressure laminates, however, did not come about until after World War II. The inevitable building boom after the War took full advantage of these laminates. In the home, for example, the material not only became useful for such applications as cladding for kitchen and bathroom counters, but also for furniture such as coffee tables and dinette sets.

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<sup>76</sup> Susan Grant Lewin, *Formica® & Design. From the Counter Top to High Art* (New York: Rizzoli International Publications, ©1991), 20.

<sup>77</sup> Meikle, op. cit., 108.

<sup>78</sup> Lewin, op. cit., 28.



**Fabricator:** The laminates at Dragon Rock were manufactured by the Formica Corporation of Cincinnati, Ohio (see Figure 5-15). As mentioned above, the Formica Corporation was started in 1913 by O'Connor and Faber as The Formica Insulation Company. As reflected in its name, the company began by making insulating rings and tubes. By the 1930s, The Formica Insulation Company was renamed The Formica Company, and reflective of its new less industrial name, it began to focus its efforts on grabbing the decorative market of the future in residential, school and commercial applications. Formica took the lead in the post-World War II demand for decorative laminates, and continues to do so today. In 1956, American Cyanamid, which had supplied melamine resin for the production of Formica®, acquired The Formica Company and renamed it the Formica Corporation.<sup>79</sup> The Formica® trade name has become a recognizable part of many American homes and has reached the point of name recognition whereby it is often mistaken for the generic name of the material.

**Description:** Formica® decorative high-pressure laminates are widely used throughout Dragon Rock. They are used in five basic ways: 1) **counter and cabinet surfaces:** lavatory-bar, kitchen, harem bathroom, garage and studio; 2) **built-in furniture:** den-balcony, living room, dining room, kitchen, housekeeper's bedroom and garage; 3) **doors:** kitchen, housekeeper's bedroom and Annie's bedroom; 4) **walls:** kitchen; and 5) **plant holder:** house entry hall.

In his slide lecture written soon after Dragon Rock was completed, Wright noted that the interior woodwork, painting and plastering was done by himself and an occasional assistant from his office.<sup>80</sup> This may be the case with laminate installation for the built-in furniture,

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<sup>79</sup> Ibid., 29.

<sup>80</sup> Russel Wright, "Garrison Slide Lecture," op. cit, 12.







5-15

“1950s Formica® sample card. Note the ‘light aqua’ that was used for the original harem bathroom counter, fourth down in the first column.”

The Formica Corporation, *Formica Laminated Plastics. Specifications, Applications, Techniques, Properties, Colors* (Cincinnati, Ohio: The Formica Insulation Company, 195-?).



although it is also possible that a contractor was hired to do this work. The doors, however, were probably clad by a door manufacturer authorized by the Formica Corporation (see Figure 5-16). A 1965 trade catalog on Formica® clad interior doors lists a manufacturer in White Plains, New York, called Lumber & Millwork, Inc., which would have been close enough to Dragon Rock to provide the product.

**Condition:** In many cases, the laminates are delaminating from their plywood cores, although the laminates themselves remain intact. The separation appears to be attributable to a failure related to the adhesive between the laminates and the cores. In the early 1960s, there would have been three different types of glues available for laminates, the more traditionally used casein and urea type glues and the newer flexible cements, also known as contact-type cements.<sup>81</sup> Although it is not certain which glue was used at Dragon Rock, the maple syrup brown color and stringy remnants of the glue makes it likely that it was contact cement.<sup>82</sup>

Problems with the initial application of the glue and/or later environmental factors are considerations for deterioration. High temperature levels due to the sun and heat vents may have caused the delamination. For example, if casein glue had been used at Dragon Rock, high moisture or humidity would cause delamination.<sup>83</sup> There is, however, little correlation between laminates in high moisture or humidity areas, such as the harem bathroom and the kitchen, and the areas of delamination. In fact, the highest instances of separation of the laminates from their cores exists in the less humid housekeeper's bedroom. With the flexible cement, high

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<sup>81</sup> Lewin, op. cit., 15.

<sup>82</sup> Blank, e-mail correspondence with author, 17 November 1997.

<sup>83</sup> Lewin, op. cit., 18.





5-16

“1965 Formica® interior door trade catalog front cover”

*Precision Made Interior Doors Clad with Formica® Laminated Plastic*, A.I.A. File No. 19-E-13 (Cincinnati, Ohio: Formica Corporation, 1965), [1].



temperatures and contact with solvents such as fumigants, gasoline, naphtha and benzine, are causes for delamination.<sup>84</sup>

Fault in this case may also lie in the way the glue was initially applied. The glue remains that are visible on built-in furniture surfaces where the laminates have come off, show evidence of uneven and random application. As noted earlier, it is most likely they were installed by a contractor hired by Wright. Interestingly, the doors, which were probably clad by an authorized manufacturer, are not delaminating at all.

Attempts have been made to repair these delaminating elements. Examples of film tape, masking tape, nails and even staples have been found. The most obvious damage has resulted from nails and staples which have created holes and can cause degradation. The discoloring and failing tapes, however, can also be harmful since they have degradation products that can migrate into the laminates.<sup>85</sup>

The cabinet doors in the living room and dining room have light red laminates with a reddish brown lacquer coating clad on one side. All of the lacquer coating has a splotchy appearance, giving the appearance of deterioration. However, Ann Wright's husband, Adam Anik, notes that this was intentionally done by Wright, playing up the contrast of using a coating material, generally reserved for the more traditional building material wood, for the synthetic laminate.

One of the laminates has deformed slightly. This is used as the underside of the bottom shelf of the counterbalanced cabinet in the kitchen. It appears to be due to inadequate original structural support.

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<sup>84</sup> Ibid., 15.

<sup>85</sup> Sharon Blank, thesis comments, November 1997.





As mentioned earlier, plastics have an inaccurate reputation for being indestructible, and decorative high-pressure laminates are no exception. True, these laminates are highly resistant to heat and are easily wiped clean. These characteristics have made the material popular for use as kitchen counter tops. However, they are too often regarded for their “clean appearance and permanent, mar proof surfaces.”<sup>86</sup> In reality, like any other material, over time laminates are susceptible to normal wear and tear. This is clearly evident on surfaces with high usage, such as kitchen counter tops. In the Dragon Rock kitchen, the white Formica® counter tops have remnants of what are clearly knife marks. All too often, these kitchen surfaces are used as cutting boards, thus leaving their marks.

#### 5.4.2 Polymethyl Methacrylate

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Den-balcony	<ul style="list-style-type: none"> <li>• Transparent colorless fixed closet door panel with Audubon print underneath (DB.1)</li> <li>• Transparent colorless sliding cabinet door panels sandwiching organic elements (DB.3.a,b)</li> </ul>
Harem toilet/ bathroom hall	<ul style="list-style-type: none"> <li>• Semi-translucent white fixed partition wall panels, sandwiching organic elements, between hall and toilet (HTBH.1)</li> <li>• Semi-translucent white sliding partition door panels, sandwiching organic elements, between hall and toilet (HTBH.2)</li> </ul>
Harem bathroom; bathroom hall	<ul style="list-style-type: none"> <li>• Transparent colorless sliding partition door panels, sandwiching butterflies, between bathroom and hall (HBa.1.a,b)</li> </ul>
Housekeeper's bedroom	<ul style="list-style-type: none"> <li>• Transparent colorless wall panel with Audubon print underneath (HBe.19)</li> </ul>
Annie's bedroom	<ul style="list-style-type: none"> <li>• Transparent colorless sliding closet door panels with organic elements sandwiched underneath (AB.1.a-c)</li> </ul>
Studio bathroom; Studio toilet/ bathroom hall	<ul style="list-style-type: none"> <li>• Semi-translucent white fixed partition wall panels, with embedded organic elements, between bathroom and toilet (SBa.2.a)</li> <li>• Semi-translucent white sliding partition door panel, with embedded organic elements, between bathroom and toilet/bathroom hall (SBa.2.b)</li> </ul>

<sup>86</sup> G. S. Learmonth, *Laminated Plastics* (London: Leonard Hill Limited, 1951), 201.



**General Description:** Acrylics have been called “glamour plastics” because of their high clarity and beauty.<sup>87</sup> Acrylics originate from the raw materials, coal, air, water and petroleum, and are processed by molding, casting or extruding.<sup>88</sup> One of the most commonly used and known form of this resin is polymethyl methacrylate. Generally, cast polymethyl methacrylate sheets are manufactured between parallel plates of polished plate glass held together with a flexible vinyl spacing gasket and clamps. First, the resin syrup is poured between an opening of the gasket, and then is taken to the curing oven. The product is then taken out of the mold and annealed to relieve stress. Finally, a paper is applied to protect the surface for it can be easily scratched.<sup>89</sup> Its light weight and resistance to breakage, however, has made it a popular replacement for applications where glass was previously used. In addition, it has excellent optical qualities, low water absorption, good electrical resistance and excellent weathering qualities.<sup>90</sup> Cast sheets have some extra beneficial properties, as compared to those that are extruded; they are stronger due to a three dimensional network of interlocking polymer chains. Cast polymethyl methacrylate is also less susceptible to stress cracking and crazing.<sup>91</sup>

**General History:** Polymethyl methacrylate had its beginnings in 1901 when Otto Rohm began working with polymerizing acrylic acid. However, he stopped this work in order to get involved with leather tanning chemicals through the German Rohm and Haas Company which he formed in 1907 with Otto Haas.<sup>92</sup> In 1909, Haas went overseas and established a branch in

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<sup>87</sup> Simonds and Church, op. cit., 19.

<sup>88</sup> du Bois and John, op. cit., 40.

<sup>89</sup> Milby, op. cit., 301.

<sup>90</sup> Simonds and Church, op. cit., 20.

<sup>91</sup> Don Sale, “An Evaluation of Eleven Adhesives for Repairing Poly(methyl methacrylate) Objects and Sculpture,” in David W. Grattan, ed., *Saving the Twentieth Century: The Conservation of Modern Materials*, Proceedings of a Conference Symposium '91 – Saving the Twentieth Century (Ottawa, Canada: Canadian Conservation Institute, 1993), 326.

<sup>92</sup> *Hoover's Handbook of American Business 1997*, vol. 2 (Austin, Texas: Hoover's Business Press, ©1996), 1158.



the United States in Philadelphia, Pennsylvania, which is today the company's home office. By the 1920s, Rohm began working again to develop a commercially viable acrylic resin. In 1932, he and an associate, Walter Bauer accidentally discovered polymethyl methacrylate, which was introduced to the United States in 1936. At the same time, ICI in Great Britain and E. I. du Pont de Nemours & Company in the United States, were working with producing polymethyl methacrylate as well. The former introduced Perslex® and the latter Pontalite®, which would later be renamed Lucite®.<sup>93</sup>

The development of polymethyl methacrylate in the mid-1930s was timely as it became widely used in the United States during World War II as a shatterproof glass substitute. Its light weight and high light transmission qualities made it highly effective for use in war time planes, and had the added advantage of greater safety for, if broken, it did not shatter in jagged and dangerous pieces.<sup>94</sup> Acrylics then made an effective transition into post-war civilian life. Not only was it used in transparent applications, such as for skylights and interior partitions, but also for more translucent applications of back lit outdoor signage and auto taillight covers.

**Fabricator:** The fabricators for the polymethyl methacrylate components were Polyplastex United, Inc. and Wasco Products, Inc. Polyplastex, a fabricator of mostly vinyl plastic products, was incorporated in 1946 and had its offices in Union, New Jersey in the early 1960s.<sup>95</sup> The company most likely no longer exists today. Wasco Products, Inc. made such

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<sup>93</sup> Meikle, op. cit., 86-87.

<sup>94</sup> Stephen Bass, *Plastics and You* (New York: Eastwood-Stali Company, ©1947), 78.

<sup>95</sup> John Sherman Porter, ed.-in-chief, *Moody's Industrial Manual. American and Foreign*, part 2 (New York: Moody's Investors Service, 1961), 1816.





products as partitions and shower doors. When Dragon Rock was built, they had their main office in Cambridge, Massachusetts.<sup>96</sup> The company still exists today, making similar products.

The polymethyl methacrylate resin manufacturers and processors of the components are unknown. However, Rohm and Haas Company, the maker of Plexiglas® and E. I. du Pont de Nemours & Company, Inc., the maker of Lucite®, were the two that were most commonly used in the United States at the time.

Panels similar to the sliding door between the harem bedroom hall and the bathroom hall made by Wasco Products, was illustrated in a *Good Housekeeping* article from April, 1960, entitled “A New Way of Life in One Word: Plastics” (see Figure 5-17). It is likely that Wright initially designed this product, and that it was later produced for the mass market without the association of his name.

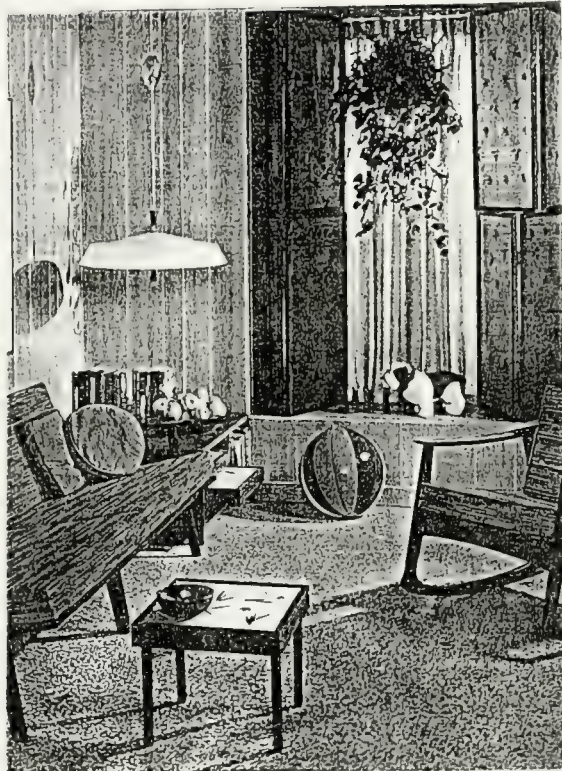
**Description:** The acrylics found at Dragon Rock are most likely cast polymethyl methacrylate. Although it is difficult to distinguish cast from extruded acrylic forms, the latter was not commercially available until the 1970s.<sup>97</sup> The components are found in three basic uses at Dragon Rock: 1) **sliding doors:** den-balcony, harem toilet/bathroom hall, harem bathroom, Annie’s bedroom, studio bathroom hall and studio bathroom; 2) **wall partitions:** harem toilet/bathroom hall, studio toilet and studio bathroom; and 3) **wall panels:** den-balcony and housekeeper’s bedroom. A large majority of the acrylics are part of a significant decorative element of the house, as they either embed or sandwich organic materials such as autumn leaves, grass or butterflies. In the two instances of their use as wall panels, the acrylic panels cover Audubon print copies.

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<sup>96</sup> “As little as \$29.95\* puts the luxury of shatterproof Wasco showerwall in your bathroom!” advertisement in *House and Home* 16, no. 1 (July 1959): 158.

<sup>97</sup> Sale, op. cit., 326.





5-17

“‘Play-as-You-Grow Living Room’ in *Good Housekeeping* from 1960. Note the window panels which are similar in pattern to the harem toilet/bathroom hall sliding door.”

“A New Way of Life in One Word: Plastics,” *Good Housekeeping* 150, no. 4 (April 1960): 89.



**Condition:** The polymethyl methacrylate components are generally in good condition, showing no obvious signs of chemical deterioration. Acrylics hold up well to the deteriorating effects of ultraviolet (UV) radiation, microbiological attack and moisture.<sup>98</sup> The annealing process improves the resistance to UV radiation by creating a highly polymerized plastic with a very low content of free monomer,<sup>99</sup> although it is possible that the annealing step could have been skipped by the processor in order to cut costs.<sup>100</sup> These characteristics have helped make it a popular material for back lit outdoor signage. These same weather resistant features have kept the acrylic components at Dragon Rock looking new, even when located in the path of direct sunlight and high humidity conditions, as with the sliding partition door between the harem bathroom and its hall. The butterflies sandwiched between the panels, however, are not faring as well. Pieces, and in one instance, the entire colored portion of a butterfly have fallen. The damage is especially extensive where there is a small hole drilled into the panel facing the bathroom. The protective environment, away from the deterioration factors such as moisture and heat, has been disturbed.

There is also damage from physical abrasion. One major disadvantage of acrylics is the soft nature of their surface which can be scratched.<sup>101</sup> This is most apparent with the two acrylic panels that make up the sliding cabinet door in the den. Each of the four corners has some level of physical deterioration. One of the larger chips is on the side covering the autumn leaves. There are also some cracks and scratches. In addition, the panels in Annie's bedroom have consistent horizontal scratches across the centers.

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<sup>98</sup> Morgan, op. cit., 30.

<sup>99</sup> Sale, op. cit., 326.

<sup>100</sup> Blank, telephone conversation with author, 29 November 1997.

<sup>101</sup> [Rohm and Haas Company], *Fabrication of Plexiglas* (Philadelphia: Rohm and Haas Company, [1962]), 28.





Frame-mounted acrylic sheets, such as those used for wall and slide panels at Dragon Rock are preferable to other methods of application such as those that were nailed onto their substrates. This is to account for thermal expansion and contraction, but also to evenly distribute stress resulting from impact.<sup>102</sup> Some of the nailed areas of acrylic components have shown the results of concentrated stress, as there are small cracks radiating from their holes. It is possible that panels with cracks today may not have been annealed as they should have been when first processed.

Some of the acrylic panels have slightly deformed. One is a sliding door located between the harem bathroom hall and the bathroom, and the other a wall panel between the studio toilet and bathroom hall. It appears that this may be due to the fact that acrylics expand and contract readily with changing temperatures.

#### 5.4.3 Fiberglass Reinforced Polyester

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Den-balcony	<ul style="list-style-type: none"> <li>Semi-translucent off white exterior panel for closet (DB.2)</li> </ul>
Dining room	<ul style="list-style-type: none"> <li>Twelve opaque off white shelves inside cabinets at island between dining room and kitchen (DR.3.a-c; DR.4.a-c; DR.5.a-f)</li> <li>Eight opaque off white vertical dividers inside a cabinet at island between dining room and kitchen (DR.4.d-k)</li> <li>Eleven opaque off white vertical dividers inside drawers at island between dining room and kitchen (DR.9.a-e; DR.10.a-f)</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li>Six opaque white vertical dividers ( K.4.a, b; K.8.a-d)</li> <li>Semi-translucent off white ceiling light panel (K.18)</li> </ul>
Harem toilet/ bathroom hall	<ul style="list-style-type: none"> <li>Opaque off white near rectangular pieces at the frame of the acrylic wall panel (HTBH.3.a, b)</li> </ul>
Harem bathroom	<ul style="list-style-type: none"> <li>Opaque white painted wall cladding at entire northwest wall (HBa.4)</li> </ul>
Annie's bedroom	<ul style="list-style-type: none"> <li>Opaque light yellow backside of sliding closet door (AB.2.a-c)</li> </ul>
Studio entry hall	<ul style="list-style-type: none"> <li>Semi-translucent off white ceiling light panels (SEH.2.a, b)</li> </ul>

<sup>102</sup> Ibid., 6.





**General Description:** Reinforced plastic panels are created through low-pressure molding methods which use pressures of 0 to 1,000 psi.<sup>103</sup> The basic ingredients of reinforced plastics are resin and filler. This combination is considered a composite because the ingredients do not merge into each other, but instead maintain their own identities.<sup>104</sup> Thermoset resins, especially polyester, with glass base composites, is the most common type of plastic used. In turn, the most common use of unsaturated polyester resins is for the use of reinforced plastics.<sup>105</sup> The glass, which can be in the form of fiber, bead, flake, mat, to name a few, helps give the final plastic its shape. Fillers such as fiberglass can reduce the cost, provide strength and body, reduce shrinkage, and lower the curing time, to name a few qualities.<sup>106</sup> The greater the amount of reinforcement used and the longer the fibers, the higher the strength of the component.<sup>107</sup> Reinforced plastics take more man power and time than other post-war plastics. There are several methods for creating low-pressure fiberglass reinforced plastic components. These include contact molding, vacuum bag molding, pressure bag and spray-up.<sup>108</sup> Fiberglass reinforced polyester has a high level of resistance to moisture absorption,<sup>109</sup> but it is also susceptible to strong alkalis and a few weak acids.<sup>110</sup>

**General History:** An early variation of reinforced plastics was patented in 1916 by inventor, Robert Kemp, at the Westinghouse Electric and Manufacturing Company.<sup>111</sup> The material was

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<sup>103</sup> du Bois and John, op. cit., 266.

<sup>104</sup> Lubin, op. cit., 3.

<sup>105</sup> Simonds and Church, op. cit., 44.

<sup>106</sup> Cheremisinoff and Cheremisinoff, op. cit., 26.

<sup>107</sup> Ibid., 61.

<sup>108</sup> du Bois and John, op. cit., 277.

<sup>109</sup> Cheremisinoff and Cheremisinoff, op. cit., 33.

<sup>110</sup> Ibid., 59.

<sup>111</sup> Lubin, op. cit., 7.



not fully developed and mass produced until World War II. During the early 1930s, the Owens-Illinois Glass Company developed the first commercially available glass fibers.<sup>112</sup> The demand for lightweight and strong materials for aircraft during the war made this relatively new material ideal despite initial high raw material and processing costs. After the war, reinforced plastic found their way into the daily lives of Americans in automobiles, boats, appliances, furniture and containers to name a few applications.

**Manufacturers:** None of the manufacturers involved in creating these components are known.

**Description:** Although there is no written information confirming the resin used for these components, more than likely it is polyester. Polyester was the most commonly used resin for such plastics because it was easier to use and also the least expensive. The use of any other resin would not only have been more expensive but most likely specially made.<sup>113</sup> It is also not known what processing method was used. There are basically four different types of fiberglass reinforced polyester at Dragon Rock: 1) The most common consist of **single panels** and **two separate pieces that have been sandwiched together and have at least one metal border**. They are used as dividers or shelves often inside cabinet space. These examples exist in the dining room and kitchen. The application of these components reflects the Wrights' theories as defined in *Mary and Russel Wright's Guide to Easier Living*. For example, its suggestion of storing trays vertically and using compartmentalized storage space in drawers for organization, can be found here. 2) There are three instances of **single panels being used for luminescent purposes** with fluorescent lights behind. There is the side of a closet in the den-

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<sup>112</sup> Milby, op. cit., 151.

<sup>113</sup> Sharon Blank, e-mail correspondence with author, 22 October 1997.



balcony, the ceiling at the landing of the stairs between the house entry hall and the kitchen, and the ceiling in the studio entry hall. 3) There is one **wall cladding** painted white which covers the entire northwest wall of the harem bathroom hall and bathroom. This laminate piece is not smooth like the others, and has longer protruding fiberglass pieces that, together with the resin, create a rough irregular surface. Unlike the others, this surface was not gone over with a roller during processing. 4) There are three **panels covering the backside of sliding closets** in Annie's bedroom. These panels are more flexible than the other fiberglass reinforced plastics in the house.

**Condition:** Generally, these plastic components are in good condition. They do not appear to have significantly discolored. The sandwiched components used as dividers and shelves, however, receive some level of abrasion when pulled in and out along their guides. Currently the only evidence of damage with these are some minor chips on corners and the deforming of some of the elements where they are stressed along the guides. There are also panels that have bowed due to inadequate structural support. There are, the side panel of the den-balcony closet, ceiling light panel of the landing of the stairs between the house entry hall and the kitchen, and one of the vertical dividers over the oven in the kitchen. Also, it is not certain whether or not the wall cladding of the harem bathroom and bathroom hall was painted because of deterioration, or for purely aesthetic reasons.

#### 5.4.4 Polyester Reinforced With Fiberglass and Parallel Nylon Strands

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Den-balcony	<ul style="list-style-type: none"> <li>• Translucent light yellow panel cladding balcony counter top (DB.5)</li> <li>• Semi-translucent off white panel cladding front of balcony (DB.6)</li> </ul>
Lavatory-bar	<ul style="list-style-type: none"> <li>• Semi-translucent off white light fixture panel (LB.7)</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li>• Semi-translucent white ceiling light panels (K.1.a-h)</li> <li>• Semi-translucent off white shelf lining for counterbalanced cabinet (K.5)</li> </ul>
Harem bathroom	<ul style="list-style-type: none"> <li>• Semi-translucent white ceiling light panels (HBa.3.a-c)</li> </ul>
Housekeeper's bedroom	<ul style="list-style-type: none"> <li>• Opaque white closet rack cover (HBc.15)</li> </ul>
Studio bathroom	<ul style="list-style-type: none"> <li>• Semi-translucent off white ceiling light panels (SBa.1.a, b)</li> </ul>





**General Description and History:** (see “5.4.3 Fiberglass Reinforced Polyester” above)

**Processor and Fabricator:** The fabricator of this building material was the Filon Plastics Corporation of Hawthorne, California (see Figure 5-18). Filon® was made with the commonly used fiberglass reinforced polyester, but also incorporated parallel nylon strands, which appear to be a feature unique to this product. Filon manufactured not only the flat panels found at Dragon Rock, but corrugated panels, as well as rolls that came both in flat and corrugated form. Filon® products were also used in outdoor applications, most notably for skylights.<sup>114</sup>

In the early part of 1960, about a year before Dragon Rock was completed, The Filon Plastics Corporation manufacturing plant was moved from Inglewood, California, to the nearby city of Hawthorne. The new \$2 million plant fulfilled the needs of the growing company.<sup>115</sup> The headquarters and main plant for Filon were then both located in Hawthorne, California, and one of the nationwide sales office and warehouse located in White Plains, New York. It is most likely that Wright would have dealt with this New York branch of the company to obtain the Filon® panels. By at least the 1990s, the company was a division of the British Petroleum Company, p.l.c.<sup>116</sup>

**Description:** Except for the counter in the den-balcony, the closet rack cover in the housekeeper’s bedroom and a shelf cladding in the kitchen, all other examples of these reinforced plastic panels were installed as light diffusing ceiling panels. It appears that Filon®,

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<sup>114</sup> Filon®. *World’s Largest Manufacturer and Distributor of High Quality Fiberglass-Reinforced Plastic and Rigid Polyvinyl Chloride Building Panels*, A.I.A. File No. 26-A-9 (Hawthorne, California: Filon Corporation, ©1964). In vol. 3 of *Architectural Catalog File*, compiled by Sweet’s Catalog Service (New York: F.W. Dodge Company, [1965]).

<sup>115</sup> “Filon Plastics Corp.,” *Modern Plastics* 37, no. 7 (March 1960): 227.

<sup>116</sup> *Standard & Poor’s Register of Corporations, Directors and Executives*, vol. 1 (New York: Standard & Poor’s, 1993), 1000.





5-18

“1964 Filon® trade catalog front cover”

*Filon. World's Largest Manufacturer and Distributor of High Quality Fiberglass-Reinforced Plastic and Rigid Polyvinyl Chloride Building Panels.* A.I.A. File No. 26-A-9 (Hawthorne, California: Filon Corporation, c1964). In vol. 3 of *Architectural Catalog File*, compiled by Sweet's Catalog Service (New York: F.W. Dodge Company, [1965]), [1].



which was the manufacturer's standard panel, was used for the non-luminescent applications. According to the product's available color chart, "white" appears to be the color for the opaque closet rack cover. "Clear" appears to be the name of the counter and shelf, and may have some yellow coloring. The Filon Corporation manufactured a product named Filite® to be used for luminous ceilings. It appears most likely that this product, which came only in "luminous white," was used for the ceiling panels throughout the house. The panels in the kitchen were originally of polystyrene foam back lit with fluorescent lights.<sup>117</sup> These may have been replaced because the foam would not have been very effective at transmitting light.

Glass reinforced polyester panels were not commonly used for ceiling panels. This was because reinforced plastics are generally vulnerable to abrasion and ultraviolet radiation.<sup>118</sup> The Filon® panels, however, have an acrylic monomer additive which have increased their ability to resist these deterioration factors.<sup>119</sup>

**Condition:** Some of the components including the "clear" Filon® panels mentioned above and a few of the ceiling light panels, may be slightly yellowing. This is most likely a sign of chemical deterioration accelerated by the radiation of fluorescent and/or natural light. There is also the possibility that there were slight color variations from the point of manufacture. In other words, the slight yellowing could be the original color from the manufacturer.

The panels where the supports are still stable have not bowed, owing to the efficiency of the fiberglass reinforcement to support the weight of the panel. However, in the instance of one of the kitchen ceiling light panels (K.1.c), where the ceiling frame in the kitchen has

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<sup>117</sup> Russel Wright, "Garrison Slide Lecture," op. cit., 17.

<sup>118</sup> "Bright Days Ahead for Plastics in Lighting," *Modern Plastics* 37, no. 12 (August 1960): 192.

<sup>119</sup> Filon®, *World's Largest Manufacturer and Distributor of High Quality Fiberglass-Reinforced Plastic and Rigid Polyvinyl Chloride Building Panels*, op. cit., 4.





broken, the panel has bowed and cracked. In addition, there are some smaller cracks on two other kitchen ceiling light panels (K.1.f, h), and various stains on several ranging in color from brown to black to blue. One of the light panels (K.1.f) has exposed nylon strands which are dangling.

#### 5.4.5 Polystyrene

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
<b>Dining room</b>	<ul style="list-style-type: none"> <li>• Two opaque light beige drawers at island between kitchen and dining room (DR.7.a, b)</li> <li>• Three opaque light beige slide-panels for drawers at island (DR.8.a-c)</li> <li>• One opaque grayish light brown slide-panel for drawers at island (DR.8.d)</li> </ul>
<b>Kitchen</b>	<ul style="list-style-type: none"> <li>• Seven opaque light beige drawers at utility storage area (K.14.a-d; K.15.a-c)</li> <li>• Four opaque light beige slide-panels for drawers at utility storage area (K.16.a-d)</li> </ul>
<b>Housekeeper's bedroom</b>	<ul style="list-style-type: none"> <li>• Two opaque light beige dressing table drawers (HBe.2.a, b)</li> <li>• Two opaque light beige dressing table drawer slide-panels (HBe.3.a, b)</li> <li>• Four opaque light beige drawers for two dressing tables (HBe.7.a, b; HBe.10.a, b)</li> <li>• Four opaque light beige drawer slide-panels for two dressing tables (HBe.8.a, b; HBe.11.a, b)</li> <li>• Four opaque light beige dresser drawers (HBe.13.a-d)</li> <li>• Two opaque light beige dresser drawer slide-panels (HBe.14.a, b)</li> </ul>
<b>Studio</b>	<ul style="list-style-type: none"> <li>• Six opaque light beige drawers below counter (S.1.a-f)</li> <li>• Four opaque light beige (painted white) slide-panels for drawers below counter (S.2.a-d)</li> </ul>

**General Description:** Polystyrene is made from benzene and ethylene in a gaseous state, to form ethyl benzene. This is then dehydrogenated to form a styrene monomer that is polymerized to create a transparent and solid polystyrene. Its colorless nature makes it open to





a wide variety of colors.<sup>120</sup> Polystyrene resins are most commonly molded. However, the Dragon Rock drawers and slide-panels are vacuum formed, an inexpensive and straightforward thermoform processing method. It initially involves heating a plastic sheet held in a frame. There is a mold directly below, which can be cast aluminum, wood or plaster, in which small holes are made for the vacuum forces. Once the plastic is soft and pliable, vacuum pressure is applied to pull the sheet into the shape of the mold. When cooled, the plastic has hardened and retains its shape.<sup>121</sup> Polystyrene is low in cost, has a high resistance to moisture absorption and chemical attack, and is the lightest weight thermoplastic.<sup>122</sup> However, although it has a hard surface relative to most thermoplastics, it can be easily scratched.

**General History:** Although the first styrene resin was created in England in 1839, its manufacture was not technologically or economically feasible until the next century.<sup>123</sup> Polystyrene was first commercially developed and manufactured in the United States by the Dow Chemical Company and the Bakelite Corporation in the late 1930s. It was a popular material during World War II both as a plastic and its use in synthetic rubbers. War time needs led to extensive research by chemical companies such as Dow and the Monsanto Chemical Company to make inexpensive and pure polystyrene.<sup>124</sup> After the war, it continued to be widely used in the United States, both in solid and foamed forms, so that by 1961 its production reached the level of a billion pounds a year along with vinyl and polyethylene.<sup>125</sup> Because it is so inexpensive to produce, it has become a very common plastic. It became

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<sup>120</sup> Morgan, op. cit., 29.

<sup>121</sup> Baird, op. cit., 156.

<sup>122</sup> Bass, op. cit., 92, 93.

<sup>123</sup> Ibid., 91-92.

<sup>124</sup> Milby, op. cit., 252.

<sup>125</sup> Simonds and Church, op. cit., 56.



popularly used for kitchen household items, encasements for televisions and radios, wall tiles, and toys.

**Resin Manufacturer:** The Monsanto Chemical Company of Springfield, Massachusetts, is the manufacturer of the resin Lustrex Hi-test 88 used for the drawers and slide-panels. In 1901, John Queeny, who was a buyer at a St. Louis drug company, created Monsanto Chemical Works in order to make the sweetener saccharin. Monsanto was Queeny's wife's maiden name. In the late 1920s, the company began working with rubber and plastics as well. By the time the United States entered World War II, Monsanto was directly involved with polystyrene research and making styrene monomers for military tire use. This resin would later be used for the Stratopanel® drawers at Dragon Rock. Today, Monsanto is the fourth largest chemical company in the United States.<sup>126</sup>

**Processor:** The trade name for the drawers is Stratopanel®, and they were made by The Moulded Structures Division of Robert A. Schless & Company in Elizabethtown, New York (see Figure 5-19). At the time these drawers were installed at Dragon Rock, they were a new design. The drawers and their slide-panels are no longer manufactured. There is still a Robert A. Schless & Company, but the business belongs to the son of the Mr. Schless who made plastic products. It is a completely different organization that deals with software development.<sup>127</sup>

**Description:** Polystyrene is used for vacuum formed Stratopanel® brand drawers and slide-panels in the dining room, kitchen utility area, housekeeper's bedroom and studio. The Stratopanel® drawers used in the house reflect two basic ways that these drawers could be

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<sup>126</sup> *Hoover's Handbook of American Business 1997*, vol. 2, op. cit., 936.

<sup>127</sup> Robert A. Schless, Jr., telephone conversation with author, 1 December 1997.



### New approach to drawers

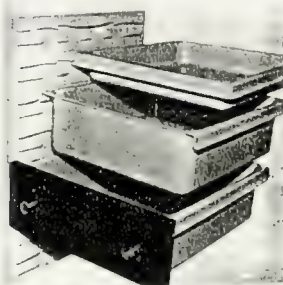
Drawer guide devices, such as rollers, center slides, etc., used for wooden drawers, are eliminated by a new storage system designated strata-panel. The system consists of styrene slide-panels and modular drawers. The ease and speed of installation of the system is said to permit substantial economies—one furniture manufacturer who is using the plastic panels and drawers has reported savings of from 25 to 33 percent.

Made by The Moulded Structures Div., Robert A. Schless & Co., Elizabethtown, N. Y., the system is also

varying drawer heights. All panels are interchangeable, with no left or right designation. A waterproof contact cement, furnished with the system, bonds the panels to such stiff materials as wood, plaster, plywood and masonry. Plywood finished on one side only can be used as a drawer backing material, or existing room or closet wall can often serve as the back side.

The modular drawers, which slide easily along the panel guides, are available in 3- and 6-in. heights, a depth of 17½ in., and five widths from 16¼ to 46¼ inches. The drawers may be ordered with yellow birch or walnut fronts, with the drawer edge trimmed to receive other fronts, or with an integrally formed pull.

Both slide-panels and drawers are vacuum formed from impact styrene sheet. Material used for this application is Lustrex Hi-test 88 supplied by Monsanto Chemical Co.



**MODULAR STYRENE** drawers slide along formed-in guides of styrene panels. Top to bottom: 3-in. drawer with formed pull, 6-in. with trimmed edge; and 6-in. with wood front.

available to building contractors, interior decorators, and to the general public for do-it-yourself home improvements. Prices differ with unit size variations and end-use volume, and were not released for publication by the manufacturer.

The styrene panels with formed-in drawer guides are supplied in one standard size, 17½ by 24 in., but can be cut by shears into smaller sizes to accommodate (To page 150)

5-19

“1960 article in *Modern Plastics* introducing Stratopanel® drawers”

“New Approaches to Drawers.” *Modern Plastics* 37, no. 8 (April 1960): 148.





used. In the dining room and housekeeper's bedroom, the drawers are faced with a plywood core clad with Formica® brand decorative high-pressure laminates. Colonial Revival style handles are used for the drawers of the bedroom. All of this gives the drawers a traditional appearance with non-traditional materials. On the other hand, the drawers in the kitchen and studio do not have fronts, giving them a more utilitarian appearance. This is reflective of Wright's intentions with these varied rooms at Dragon Rock. The Formica® cladding is appropriate for the more public space of the dining room and the feminine quality of the housekeeper's bedroom. The lack of cladding fits the needs of the kitchen utility area as well as the masculine nature of Wright's studio.

The slide-panels with formed-in drawer guides for the drawers came in one standard size of 17-1/8" x 24" which could be cut into smaller sizes. They were most likely adhered to the plywood substrates with a waterproof contact cement which would have been provided by Robert A. Schless & Company.<sup>128</sup>

**Condition:** There is some deterioration due to physical abrasion through use. According to Ann Wright, the drawers never ran smoothly over the guides of their slide-panels. Over the years, the problem has become more severe as the contact between the drawers and their panels have become even more irregular. They often become jammed and do not move easily along the polystyrene guides as intended. Because of this, some of the drawers have cracked or corner pieces have broken off. The problem is the most severe with the drawers of the dresser in the housekeeper's bedroom where some of the drawers have slipped from their guides. Two of these drawers have completely come off their guides due in part to the weight of the objects inside.

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<sup>128</sup> "New Approach to Drawers," *Modern Plastics* 37, no. 8 (April 1960): 150.



#### 5.4.6 Extruded Polystyrene Foam

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Entry hall	• Off white panels at ceiling (HEH.4.a-aa)
Lavatory-bar	• Off white panels at ceiling (LB.9.a-j)

**General Description:** Polystyrene foam is one type of cellular plastics. Cellular plastics can be made using either thermoset or thermoplastic resins and can be closed cell, meaning the cells of the foam do not interconnect, or open cell where the cells interconnect. In addition, they come in either rigid, semi-rigid or flexible form. Polystyrene is a rigid thermoplastic with non-interconnecting cells.

Cellular polystyrene comes in three different forms, extruded, expandable molded and self-expanding. The boards found at Dragon Rock are the extruded variety. The boards were made by extruding molten polystyrene with a blowing agent under high temperature and pressure.<sup>129</sup> Polystyrene foam boards are popularly used for building walls and ceilings because of their insulative properties and moisture resistance. What has made them popular, especially for insulation, is their light weight, low water absorption (due to non-interconnected air cells), and resistance to organic growth such as mold and mildew, as well as rodents.<sup>130</sup> In addition, the polystyrene resin is inexpensive and abundantly available.<sup>131</sup>

**General History:** The first foamed plastic was actually unwittingly discovered by Leo Baekeland who created Bakelite®. He was trying to create a solid plastic without voids. Along with the other cellular plastics, polystyrene foam has a relatively new history. Extruded

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<sup>129</sup> *Plastics Engineering Handbook of The Society of the Plastics Industry, Inc.*, 3<sup>rd</sup> ed. (New York: Reinhold Publishing Corporation, ©1960), 156.

<sup>130</sup> Simonds and Church, op. cit., 57.

<sup>131</sup> *Plastics Engineering Handbook of The Society of the Plastics Industry, Inc.*, op. cit., 155.



polystyrene foam was first seriously investigated in Sweden in the 1930s, and became available for commercial consumption in the United States in 1944.<sup>132</sup> Since the end of World War II, extruded polystyrene foam has been widely used for insulation, such as in freezers and coolers, as well as for architectural applications such as for roof decks, walls and ceiling insulation.

**Resin Manufacturer, Processor and Fabricator:** The Dow Chemical Company manufactured polystyrene foam under the trade name Styrofoam® (see Figure 5-20). The company was formed in 1897 by Herbert Henry Dow in Midland, Michigan. Dow began by extracting bromides and chlorides from underground brine deposits, and entered the chlorine bleach business. By the 1940s, Dow was involved in plastics development and marketing. By 1957, nearly one third of their sales were for plastics, and the material made them one of the leading manufacturers in the United States.<sup>133</sup> Today it is the second largest chemical company in the nation. Styrofoam® has become the best known polystyrene foam in the United States, and is often inappropriately used as a generic name.

**Description:** All of the polystyrene foam examples found in Dragon Rock are at the ceiling in the shape of exposed rectangular boards at the house entry hall and the lavatory-bar. Typically, the foam board material was used in such applications as cavity wall construction and the base for interior finishes like gypsum wallboard and plaster.<sup>134</sup> Unlike these standard applications, the foam boards at Dragon Rock were not hidden under plaster or other finishing material. Instead, they were left exposed, retaining the honesty of the material.

**Condition:** The polystyrene foam at Dragon Rock is generally in good condition. Any

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<sup>132</sup> Ibid., 137.

<sup>133</sup> *Hoover's Handbook of American Business 1997*, vol. 1, op. cit., 486.

<sup>134</sup> *Styrofoam Permanent Insulation for Buildings*, A.I.A. File no. 37-B (Midland, Michigan: The Dow Chemical Company, 1964), 5, 6.





5-20

“1964 Styrofoam® trade catalog front cover”

*Styrofoam. Permanent Insulation for Buildings.* A.I.A. File No. 37-B (Midland, Michigan: The Dow Chemical Company, 1964), [1].





discoloration due to ultraviolet radiation or other environmental factors is minimal. However, there is some physical abrasion, especially with the Styrofoam® at the ceiling of the house entry hall. In addition, some of the boards at the lavatory-bar and the adjacent house entry hall have brown stains on their sides, most likely due to moisture damage.

#### 5.4.7 Vinyl

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
House entry hall	<ul style="list-style-type: none"> <li>• Beige floor with white inclusions (HEH.3)</li> </ul>
Living room	<ul style="list-style-type: none"> <li>• White textured cover for the seat and backrest cushions a built-in sofa (LR.4.a, b)</li> </ul>
Harem bathroom hall/ harem toilet	<ul style="list-style-type: none"> <li>• Two back to back identical off white textured rectangular pieces making up the accordion-fold door (HTBH.4.a, b)</li> </ul>

**General Description:** Vinyl's significant raw materials are ethylene, taken from petroleum or natural gas, and acetylene, taken from coal.<sup>135</sup> Polyvinyl chloride (PVC) is the most widely used in the vinyl group. Additives are always incorporated into PVC because the polymer is unstable enough so that the high temperature required to process it would lead to deterioration without a stabilizer.<sup>136</sup> Also, the addition of a plasticizer is key to many of PVC's more popular flexible uses since without it, the resin is brittle and hard to mold.<sup>137</sup> Vinyl can be coated, extruded, blow molded and calendered, to name a few processing methods. Coating can be applied by spreader, roller coater, dipping or spraying. Vinyl has a high resistance to most acids, fats, petroleum products, salts and organic growth.<sup>138</sup>

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<sup>135</sup> Milby, op. cit., 263.

<sup>136</sup> Morgan, op. cit., 28.

<sup>137</sup> Blank, "An Introduction to Plastics and Rubbers in Collections," op. cit., 59.

<sup>138</sup> du Bois and John, op. cit., 45.



**General History:** Vinyl was first discovered by a French chemist in 1835.<sup>139</sup> However, it was not commercially developed until the mid-1920s in the laboratories of the Union Carbide Company and introduced to the public in 1931. Its initial uses was primarily for phonograph records.<sup>140</sup> Research into vinyl became intensive during World War II when supplies of natural rubber were low. In 1943, vinyl coated fabric was introduced in the United States, again by the Union Carbide Company.<sup>141</sup> Vinyl was popularly used as a coating material for such applications as tents and life rafts, during the war. During the ensuing years, vinyl remained popular, as it was eagerly accepted by the American population for a wide variety of uses, including upholstery, floor covering and luggage.

**Resin Manufacturer/Processor/Fabricator:** 1) **Floor:** The Armstrong Cork Company processed this sheet vinyl flooring material (see Figure 5-21). The company had its beginnings in Pittsburgh, Pennsylvania, in 1860 where it was founded by Thomas Armstrong and John Glass. The Armstrong Brothers manufactured hand-carved corks. By the mid-1890s, Armstrong had emerged as a dominant force in the world cork market and in 1895 the name of the company changed to The Armstrong Cork Company. At the turn of the twentieth century, there was less demand for cork in home use. Some of the more common uses such as for the lids of preserve jars was now being replaced by mason jars. By 1906, the company changed the focus of its products to keep up with the changing market and eventually became

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<sup>139</sup> Ibid., 44.

<sup>140</sup> Holly Wahlberg, *1950s Plastics Design. Everyday Elegance with Price Guide* (Atglen, Pennsylvania: Schiffer Publishing, Ltd., ©1994), 16.

<sup>141</sup> *Plastics Engineering Handbook of The Society of the Plastics Industry, Inc.*, op. cit., 223.





5-21

“1962 advertisement for Armstrong sheet form vinyl floors”

“A Beguiling New Floor: Montina Vinyl Corlon,” advertisement in *Interiors* 122, no. 3 (October 1962): [2].





involved with linoleum. The headquarters were moved to Lancaster, Pennsylvania, where it remains today.<sup>142</sup> Armstrong later became involved with other materials such as fiberboard, cork tile and eventually vinyl flooring.<sup>143</sup> Flooring material has remained a significant part of the company's sales. The company has been called Armstrong World Industries since 1980.

2) **Built-in sofa:** E. I. du Pont de Nemours & Company, Inc. of Wilmington, Delaware, created the resin and processed the vinyl coated fabric of the upholstery, which is most likely called Fabrilite® (see Figure 5-22). The company has a long history, dating back to 1802. Its founder, Eleuthere Irenee du Pont de Nemours, fled France because of the French Revolution, and came to the United States. He established a gunpowder manufacturing plant along Brandywine Creek in Delaware. The company became highly successful in the explosives market as a result of wars such as the Mexican-American War and World War I. By 1914, however, du Pont became involved in paints, plastics and dyes. The company became very successful with plastics, as it created widely used and recognized products such as Lucite® in 1937 and nylon in 1938. Du Pont is today the largest chemical industry in the United States.<sup>144</sup>

3) **Accordion-fold door:** The accordion-fold door called Modernfold® was fabricated by New Castle Products, Inc. in New Castle, Indiana (see Figure 5-23). They are also responsible for processing the vinyl coated fabrics. Modernfold® was a popular brand for room partitions. New Castle Products, Inc. had its beginnings in 1925 as the Circle A Company, which made wood folding doors and office partitions. The name of the company

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<sup>142</sup> *Hoover's Handbook of American Business 1997*, vol. 1, op. cit., 184.

<sup>143</sup> "Armstrong History," [<http://www.armstrong.com/profile/history.html>].

<sup>144</sup> *Hoover's Handbook of American Business 1997*, vol. 1, op. cit., 520.





5-22

“1952 Fabrilite® brochure front cover”

*The Luxury Look in Plastics Upholstery. The Story of du Pont Fabrilite® for Fine Furniture* (New York: E. I. du Pont de Nemours & Company, Inc. Fabrics Division, [1952]), [1].







became New Castle Products when in 1930 the general manager of the Circle A Company, Henry Oberdorfer, bought out its assets and renamed the business. In 1932, New Castle made its first production accordion-fold door. As with most other industries in the United States at the time, New Castle Products diverted its production to the war effort in the 1940s. The company made large tents, aircraft hanger doors and engine covers for bombers. After the war, Modernfold® and other accordion doors played a good part in the suburban housing boom. The company was incorporated in 1946. In the 1960s, New Castle Products was renamed Modernfold Industries. After being purchased by the American Standard Corporation in 1969, the company was purchased by private investors in 1986, and by 1987 renamed it Modernfold, Inc.<sup>145</sup> They continue to make Modernfold® doors.

**Description:** 1) **Floor:** The upper of the two levels of the house entry hall is clad entirely with vinyl sheet flooring. The colored irregular vinyl chips set into translucent vinyl<sup>146</sup> give the appearance of a light beige terrazzo floor. Although the name of the pattern is not known, it is very similar to the Montina Vinyl Corlon by Armstrong in Figure 5-21. Wright preferred smooth and easily maintained surfaces for his floors. In *Mary and Russel Wright's Guide to Easier Living*, vinyl floors are recommended because of these qualities.

2) **Built-in sofa:** The polyurethane foam backrest and seat cushions of the built-in sofa in the living room are covered in a white textured PVC coated fabric. As with other plastic components at Dragon Rock, Wright advocated the use of plastic coated fabrics because they were easier to keep clean.<sup>147</sup> There was once an adjacent identical sofa, together

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<sup>145</sup> "The World According to Modernfold," [<http://www.modernfold.com/history.htm>], 1-2.

<sup>146</sup> *Armstrong Floors for Business, Institutional, and Other Heavy Traffic Areas*, A.I.A. File 23-G (Lancaster, Pennsylvania: Armstrong Cork Company, 1965-66), in *Architectural Catalog File*, compiled by Sweet's Catalog Service (New York: F. W. Dodge Company, [1965]), 6.

<sup>147</sup> Wright and Wright, op. cit., 20.





forming a v-shape. Early on during Wright's occupancy of the house, however, he removed the other sofa.<sup>148</sup>

3) **Accordion-fold door:** Between the harem toilet and harem bathroom hall there are two back to back PVC coated cotton fabric pieces that make up the Modernfold® accordion door. An additional back coating called Nuca-seal® was added to the fabric, which the manufacturer claimed to improve dimensional stability because this would lock out moisture which could eventually shrink or distort the fabric through temperature or humidity changes.<sup>149</sup> The fabric covers a steel frame which consisted of two rows of steel rods welded to hinges in x-shapes.<sup>150</sup> The dimensions of the door at Dragon Rock seems to indicate that it is the Soundmaster line of Modernfold® doors. If so, this would have been a later addition, since the Soundmaster was not available until 1963.<sup>151</sup> Modernfold® doors were completely fabricated at the factory and installed at the site by an authorized representative of the company.<sup>152</sup>

**Condition:** 1) **Floor:** Overall, the component is in good condition. There are some minor scratches throughout the component, as well as one long dark scuff mark at the point where the swinging door opens and closes.

2) **Built-in sofa:** The component is generally in good condition. This upholstery has some areas where its crevices have collected black grime. In addition, there are two major areas of about two to three inches in length where the fabric seam has torn.

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<sup>148</sup> Ann Wright, conversation with author, op. cit.

<sup>149</sup> *Modernfold. First and Finest in Folding Doors*, A.I.A. File no. 16M (New Castle, Indiana: New Castle Products, Inc., [196-]), 15.

<sup>150</sup> "Here's Why Modernfolds Look Better... Last a Lifetime," advertisement in *House and Home* 17, no. 5 (May 1960): 124.

<sup>151</sup> "The World According to Modernfold," op. cit., 1.

<sup>152</sup> *Modernfold. First and Finest in Folding Doors*, op. cit., 15.



3) **Accordion-fold door:** The plastic components are in good condition. However, there is a sticky film towards the top halves of the components due to a release of plasticizer from the vinyl. This is a common problem associated with aging vinyl.<sup>153</sup> There are two possible explanations for the film to exist on the top half only. First, it may be that since heat rises, the top half has been more greatly affected. Second, the bottom half would have been brushed up against more frequently and touched in general, so that the plasticizers would have come off. This loss of plasticizer from the vinyl has also made the components stiffer. In addition, the latch for the door has broken.

#### 5.4.8 Cellular Core Sandwiched by Fiberglass Reinforced Acrylic Panels

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Harem bedroom hall/ housekeeper's bedroom	<ul style="list-style-type: none"> <li>Transparent light gold colored partition wall between harem bedroom hall and housekeeper's bedroom (HBH.1)</li> </ul>

**General Description:** This panel is made up of two translucent fiberglass reinforced acrylic sheets that permanently sandwich a cellular core. The acrylic color as well as the core size and shape could be varied according to need. Trade literature notes that together with the nature of the acrylic and reinforcement, and the single-unit sandwich construction, the resulting panel has great strength and rigidity.<sup>154</sup> Other noted properties are translucency, color stability, general weather resistance, and resistance to abrasion and chemical attack.<sup>155</sup>

<sup>153</sup> Blank, "An Introduction to Plastics and Rubbers in Collections," op. cit., 59.

<sup>154</sup> *Tropiglas by Russel. Architectural Panels.* (Lindhurst, New York: Russell Reinforced Plastics Corporation, [1965?]), in vol. 3 of *Architectural Catalog File*, compiled by Sweet's Catalog Service (New York: F. W. Dodge Company, [1965]), [3].

<sup>155</sup> *Johns-Manville Corrugux Honey-Corr Translucent, Decorative, Structural, Building Panels*, A.I.A. File No. 26-A-5 (New York: Johns-Manville, [1965?]), in vol. 3 of *Architectural Catalog File*, Compiled by Sweet's Catalog Service (New York: F. W. Dodge Company, [1965]), [3].



**Fabricator:** Jones Shutter Products provided these architectural building panels for Dragon Rock. It is assumed that this company was involved with the processing end of the product. This is because other manufacturers of this product from a slightly later time period, Johns-Manville and Russell Reinforced Plastics Corporation, purchased their Lucite® acrylic sheets from E. I. du Pont de Nemours & Company, but made the actual panels. These two manufacturers produced panels in the mid-1960s very similar to the one at Dragon Rock (see Figure 5-24). It is possible that Wright had initially designed this product and was then widely produced without crediting him.

**Description:** There is a shelf going across the entire width of the component, which made it unclear whether or not this light gold colored partition with elliptical cellular core was composed of one or two panels. Other similar fiberglass reinforced acrylic panels, Corrugulux Honey-Corr® made by Johns-Manville and Tropiglas® by Russell Reinforced Plastics Corporation, however, came in standard sizes that were three to four feet high. The former is the measurement of the panel at Dragon Rock. Thus, it appears that this is more than likely one panel.

**Condition:** The components are in good condition with little evidence of deterioration. There are some minor scratches on the component. The panel appears to be holding up well to the fluorescent lighting behind it, although it is difficult to determine conclusively because of the light gold color of the component. However, acrylic resins resist the deteriorating effects of light.







5-24

“Circa 1965 trade catalog front cover page of cellular core sandwiched by fiberglass reinforced acrylic panels manufactured by Johns-Manville”

*Johns-Manville Corrugulux® Honey-Corr Translucent, Decorative, Structural, Building Panels.* A.I.A. File No. 26-A-5 (New York: Johns-Manville, [1965?]). In vol. 3 of *Architectural Catalog File*, compiled by Sweet's Catalog Service. (New York: F.W. Dodge Company, [1965]), [1].



#### 5.4.9 Styrene and Acrylic Rigid Foam Sandwiched by Acrylic Panels

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Studio bedroom; Studio entry hall	<ul style="list-style-type: none"><li>• Transparent blue and copper brown wall partition between studio entry hall and bedroom (SEH.1)</li></ul>

**General Description:** A copolymer of styrene and methyl methacrylate is extruded to form a one inch thick large cell rigid foam. The final product has the appearance of soap bubbles. This foam is then sandwiched between a 1/16" thick transparent light blue methyl methacrylate sheet on either side.<sup>156</sup>

**Resin Manufacturer, Processor and Fabricator:** The resin manufacturer, processor and fabricator were Dow Chemical Company (for more information on Dow look under "5.4.6 Extruded Polystyrene Foam"). A 1962 article in *Modern Plastics* entitled "A Conventional House – and Plastics are Everywhere!" illustrates this component as a newly developed product (see Figure 5-25). Although Wright is not mentioned in the article, it is likely that Wright had initially designed this product and it was then produced for the general public.

**Description:** This component is a partition between the studio entry hall and the bedroom. For the Dragon Rock application, the side facing the studio entry hall has an additional transparent copper brown acrylic panel over the blue panel of the main component. In addition, the foam has been partially colored light green.

**Condition:** The partition is in good condition, although there are some horizontal parallel scratches, especially on the side facing the studio bedroom. Acrylic holds up well to the damaging effects of fluorescent lights.

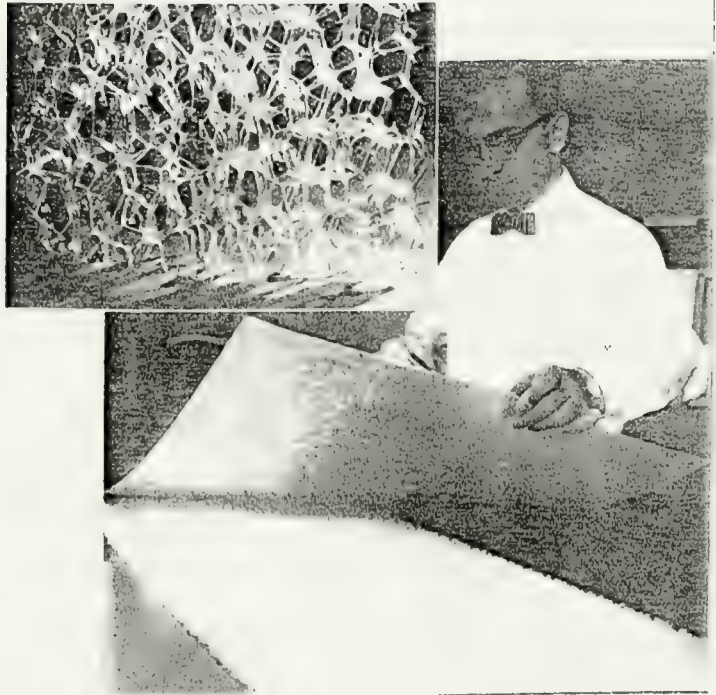
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<sup>156</sup> "A Conventional House – and Plastics are Everywhere!" op. cit., 96-97.



## TWO NEW CONCEPTS

**LARGE CELL** rigid foam (right), actual size, is extruded in 1-in. thick panel from copolymer of styrene and methyl methacrylate. Insulating foam, sandwiched between 1/4-in. colored methacrylate, is used as glazing. At far right, methacrylate skin is adhered to foam.



5-25

“1962 article from *Modern Plastics* discussing the new styrene and acrylic rigid foam sandwiched by acrylic panels manufactured by the Dow Chemical Company”

“A Conventional House – and Plastics are Everywhere!” *Modern Plastics* 40, no. 4 (December 1962): 97.



#### 5.4.10 Epoxy

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Living room	<ul style="list-style-type: none"><li>• Light mustard colored floor with pebble inclusions (LR.6)</li></ul>

**General Description:** Epoxy is seen less in decorative applications, and instead is used more as an adhesive or coating.<sup>157</sup> It is a thermoset and is made by a reaction between epichlorohydrin and bisphenol. The latter is derived from phenol and acetone. Epoxy comes in two basic forms, solid or liquid. The former is used for coating applications, while the latter for such uses as adhesive. Some of epoxy's properties that have made it popular include the ability to cure without the use of external heat, low shrinkage during curing, high strength and good dimensional stability.<sup>158</sup>

**General History:** Of the plastic architectural components at Dragon Rock, epoxy is one of the newest in terms of general commercial use. Epoxy was originally created in the 1930s by P. Castan in Switzerland as an adhesive, and at the same time, S. O. Greenlee in the United States as a coating.<sup>159</sup> However, it was not commercially introduced until the early 1950s. Today it is widely used as a structure adhesive.

**Manufacturers:** The manufacturers involved in creating this component are unknown.

**Description:** Except for some rocks lining the edges, the entire top level of the two level living room is covered with a surface made with epoxy and pebble inclusions. These were probably mixed and poured in place. The resulting floor has a light mustard color. The floor

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<sup>157</sup> Milby, op. cit., 76.

<sup>158</sup> Simonds and Church, op. cit., 32-34.

<sup>159</sup> Milby, op. cit., 78.





was, however, originally of concrete. Approximately two years later, Wright decided that the floor did not work aesthetically and so changed it to the current surface.<sup>160</sup>

**Condition:** The floor is in good condition, except that a portion about one to two inches square has broken off at the southwest edge.

#### 5.4.11 Epoxy Coated Fiberglass Reinforced Polyester Panel with Loose Fiberglass

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Den-balcony	<ul style="list-style-type: none"><li>Off white balcony panel (DB.6)</li></ul>

**General Description and History:** (for fiberglass reinforced polyester see “5.4.3 Fiberglass Reinforced Polyester,” and for epoxy see “5.4.10 Epoxy”)

**Manufacturers:** The manufacturers involved in creating this component are unknown.

**Description:** Epoxy coats a fiberglass reinforced polyester panel at the balcony, just above the dining room. There is loose fiberglass behind the panel. The coating and the loose fiberglass gives the panel an appearance of clouds, which was intended by Wright.<sup>161</sup>

**Condition:** The panel does not show signs of chemical deterioration. However, the top of the component is bowing outward. It appears to be covering too wide a space without adequate structural support. This appears to be an original design flaw.

#### 5.4.12 Extruded Thermoplastic

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Lavatory-bar	<ul style="list-style-type: none"><li>Matte off white medicine cabinet tambour door (top most piece is beige) (LB.5)</li></ul>

**General Extrusion Description:** Extrusion molding creates plastic pieces of continuous

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<sup>160</sup> Ann Wright, conversation with author, op. cit.

<sup>161</sup> Russel Wright, “Garrison Slide Lecture,” op. cit., 16.



shapes through the use of a machine that has a screw which pushes a hot melted plastic material through a slit type die which is in the shape of the cross section of the extruded piece.<sup>162</sup> The size of the final product is determined by the diameter of the screw. The plastic resin granules are first fed through the hopper; a rotating screw or plunger forces the material forward. As the resin is fed, it is heated by external heating sources as well as the friction between it and the screw, causing it to melt and to conform to the shape of the extruding machine. This process generally only works with thermoplastics.<sup>163</sup> Extrusion is one of the least expensive methods for processing plastics and is very popular.<sup>164</sup>

**General Extrusion History:** The extruding machine most likely has its origins in the early nineteenth century as a hand operated machine initially used for lead pipes. By mid-century this machine was used for the production of gutta percha thread, rubber and eventually insulated wires. By the end of this century, a mechanized version of the process was introduced. The first synthetic plastic to be extruded was cellulose nitrate during the 1870s, and remained the only commercially extruded plastic until World War I when casein, a protein based plastic, also became available.<sup>165</sup> Polystyrene, polyethylene and polypropylene were popularly extruded thermoplastics after World War II.

**Processor:** The processor of the extruded thermoplastic piece was Anchor Plastics Company, Inc., located in Long Island City, New York (see Figure 5-26). Formed in the early 1940s, Anchor Plastics specialized in the manufacture of extruded thermoplastics. In the early 1960s, they had products such as Ancorene (high impact styrene extrusion) and Aeroflex

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<sup>162</sup> Simonds and Church, op. cit., 87.

<sup>163</sup> Baird, op. cit., 101.

<sup>164</sup> Simonds and Church, op. cit., 165.

<sup>165</sup> E. G. Fisher, *Extrusion of Plastics* (New York: John Wiley & Sons, ©1976), 4-5.



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5-26

"1960 advertisement from *Modern Plastics* for Anchor Plastics Co., Inc."

"Anchor Plastic Extrusions to Your Specifications," advertisement in *Modern Plastics* 37, no. 6 (February 1960): 185.





(polyethylene extruded sheeting, rods, tubing).<sup>166</sup> They are still operating today on a more limited basis.

**Description:** There is one existing example of tambour doors in the house which is made with this unidentified thermoplastic. Designed by Wright, it is composed of 42 parallel extruded plastic pieces which have been connected together. There were originally three others similar doors: two covering the linen closet on the northeast wall of the entry hall and one covering the door to the dumbwaiter on the northeast wall in the den-balcony.

**Condition:** The plastics of the tambour doors are in good condition. However, like the polystyrene drawers mentioned earlier, these do not move easily along their guides. This is the reason the other three tambour doors were removed. Even when the house was fairly new, they were difficult to open and close.<sup>167</sup> The one remaining door in the lavatory-bar was the least used, and so its replacement was not as critical. It too, however, does not open and close very easily.

#### 5.4.13 Polyurethane foam

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Living room	• Cream built-in sofa cushions (LR.5.a, b)

**General Description:** The thermoplastic polyurethane is most commonly used as a flexible foam, for such applications as mattresses and cushions. However, it is found as other types of foam, such as rigid and semi-rigid, as well as for coatings and adhesives. Rigid and semi-rigid foams are often used for insulation. Flexible polyurethane foam is prepared using polyol compounds (such as castor oil, polyether and polyester) with diisocyanate, water and a

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<sup>166</sup> Simonds and Church, op. cit., 335, 337.

<sup>167</sup> Ann Wright, conversation with author, op. cit.



catalyst.<sup>168</sup> The diisocyanate reacts with the resin to create the plastic, and reacts with the water to create carbon dioxide which results in the foaming of the resin. The ingredients of rigid foam are different in that a fluorocarbon blowing agent is used instead of water. Other additives such as emulsifiers and catalysts can be added as well to control the rate of foaming and cell structure. No heat or pressure needs to be applied as the foam fills in the voids of the container which will give it its shape. <sup>169</sup> The final foamed product, whether rigid or flexible, has a high resistance to solvents and high temperatures. Flexible polyurethane foam is also flame resistant and has high tensile strength.

**General History:** Along with epoxy, polyurethane foam is one of the newest plastics at Dragon Rock in terms of general commercial use. It was initially developed in Germany by Dr. Otto Bayer in the 1930s.<sup>170</sup> It was not examined in the United States until 1954 when the Monsanto Chemical Company and Bayer of Germany joined forces to create a subsidiary called the Mobay Chemical Company to market polyurethane foam.<sup>171</sup> The product was not perfected, however, until about 1960, coincidentally when it was used at Dragon Rock.

**Resin Manufacturer and/or Processor:** The resin manufacturer and/or processor, Mobay Chemical Company was the result of a joint venture between the Monsanto Chemical Company and Bayer, a German enterprise, for the purposes of manufacture polyurethane foam. In 1967, Bayer bought out Mobay.<sup>172</sup>

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<sup>168</sup> *Plastics Engineering Handbook of The Society of the Plastics Industry, Inc.*, op. cit., 171.

<sup>169</sup> Simonds and Church, op. cit., 58-60.

<sup>170</sup> Milby, op. cit., 315.

<sup>171</sup> Mickle, op. cit., 192.

<sup>172</sup> *Hoover's Handbook of American Business*, vol. 2, op. cit., 936.



**Description:** There are two types of foam under the upholstery of the built-in sofa, although it is likely that both are polyurethane foam. It is not clear when these foams were installed, and whether or not they date to Wright's occupancy of the house. However, they appear to have been in use for at least a number of years.

**Condition:** The foam for the cushion of the back rest is in good condition, except at the tear of top of the component. Here, the foam has been exposed, leading to embrittlement and a darkening of color. There is a portion of the seat cushion which is also exposed because the seam of the vinyl upholstery has torn. This has discolored slightly, but has not otherwise changed noticeably.

#### 5.4.14 Nylon

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
Harem toilet/hall	• Accordion-fold door slide (HTBH.5)

**General Description:** The basic ingredients of the thermoplastic nylon are coal, air and water. Nylon is off white, translucent and has a high surface gloss. It can be colored in a variety of colors. Its most common processing method is molding.<sup>173</sup> A polyamide, nylon is most often associated with its use as fabric, hosiery and brush bristles. However, its tough and durable nature has made it popular as small molded components that demand heavy wear, although it readily absorbs moisture.

**General History:** Nylon was discovered and introduced to the public by the E. I. du Pont de Nemours & Company, Inc. Research for this material began in 1928, and continued for ten

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<sup>173</sup> Baird, op. cit., 44.



years until it was finally introduced to the public in 1938.<sup>174</sup> Its most common use by the general public is as a fabric as well as for stocking for women.

**Fabricator:** The fabricator was New Castle Products, Inc. of New Castle, Indiana. (for more information on New Castle look under “5.4.7 Vinyl”)

**Description:** There is one slide which allows the door to run along a track installed above. Most likely, it was injection molded, although this is not certain.

**Condition:** The condition is unknown since the slide is not visible without dismantling the accordion-fold door. It appears, however, to be in good condition because the door continues to slide easily along its track. The manufacturer noted no future maintenance would be needed because the nylon component was pre-lubricated. Nylon tends to naturally have a smooth surface so that this was most likely an unnecessary marketing gimmick.

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<sup>174</sup> Bass, op. cit., 126.





## 5.5 Light Switches

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
House entry hall	<ul style="list-style-type: none"> <li>Three circular opaque brown light switches with bronze colored coating on the outer edge (HEH.6.a, c, d)</li> <li>Two circular opaque white light switches with bronze colored coating on the outer edge (HEH.6.b, e)</li> <li>Four donut shaped transparent colorless light switch plates (HEH.7.a-d)</li> </ul>
Den-balcony	<ul style="list-style-type: none"> <li>Circular opaque brown light switch with a black colored coating on the outer edge (DB.7.a)</li> <li>Circular opaque white light switch with a gold colored coating on the outer edge (DB.7.b)</li> <li>Cylindrical off white light dimmer dial (DB.8)</li> <li>Two nearly square transparent colorless light dimmer plates (DB.9.a, b)</li> </ul>
Lavatory-bar	<ul style="list-style-type: none"> <li>Three circular opaque glossy white light switches (LB.10.a-c)</li> <li>Rectangular transparent colorless light switch plate (LB.11)</li> </ul>
Living room	<ul style="list-style-type: none"> <li>Four circular opaque glossy white light switches (LR.7.a-d)</li> <li>Rectangular transparent colorless light switch plate (LR.8)</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li>Four circular opaque glossy white light switches (K.18.a-d)</li> <li>Four letter shaped opaque white light switch identifiers (K.19.a-d)</li> <li>Two circular opaque white light switches with a grayish colored coating on the outer edge (K.20.a-b)</li> <li>Rectangular transparent colorless light switch plate (K.21)</li> </ul>
Harem bedroom hall	<ul style="list-style-type: none"> <li>Circular opaque brown light switch with some greenish bronze colored coating on outer edge (HBH.2)</li> <li>Donut shaped transparent colorless light switch plate (HBH.3)</li> </ul>
Harem bathroom hall	<ul style="list-style-type: none"> <li>Two circular opaque white light switches with some grayish colored coating on the outer edge (HTBH.6.a, b)</li> <li>Donut shaped transparent colorless with white coating light switch plate (HTBH.7.a)</li> <li>Donut shaped transparent colorless with gray coating light switch plate (HTBH.7.b)</li> </ul>
Garage	<ul style="list-style-type: none"> <li>Two circular opaque white light switches with bronze colored coating on the outer edge (G.3.a,b)</li> <li>Donut shaped transparent with white coating light switch plate (G.4)</li> </ul>
Studio entry hall	<ul style="list-style-type: none"> <li>Three circular opaque white light switches with a gold colored coating on the outer edge (SEH.3.a-c)</li> <li>Two donut shaped transparent colorless light switch plates (SEH.4.a-b)</li> <li>Donut shaped transparent with white coating light switch plate (SEH.4.c)</li> </ul>
Studio bedroom	<ul style="list-style-type: none"> <li>Circular opaque white light switch with some bronze colored coating over entire surface (SBe.1)</li> <li>Donut shaped black light switch plate (SBe.2)</li> </ul>
Studio bathroom hall	<ul style="list-style-type: none"> <li>Two circular opaque white light switches with some gold colored coating on the outer edge (STBH.2.a,b)</li> <li>Two donut shaped transparent colorless light switch plates (STBH.3.a,b)</li> </ul>
Studio	<ul style="list-style-type: none"> <li>Cylindrical opaque off white light dimmer dial (S.4)</li> <li>Nearly square transparent colorless light dimmer dial plate (S.5)</li> </ul>



The light switches and plates located throughout the house were designed by Russel Wright and manufactured by the Minneapolis-Honeywell Regulator Company who had their headquarters in Minneapolis, Minnesota. The circular light switches were called Tap-lite® and were manufactured by Minneapolis-Honeywell primarily in the 1950s (see Figure 5-27). It is not certain whether the circular switch plates at Dragon Rock were ones already being made by Minneapolis-Honeywell. However, the square plates are similar in design to the ones already available (see Figure 5-27). It is not known what resins were used for the processing of these components.

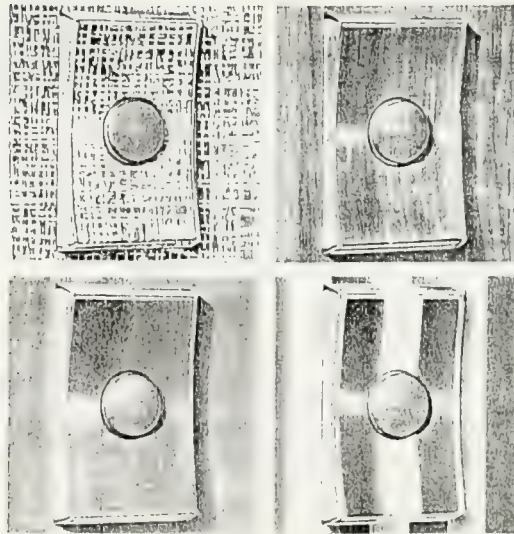
Minneapolis-Honeywell had its beginnings in 1885 when Albert M. Butz formed the Butz Thermo-Electric Regulator Company with a recently patented system called the Damper Flapper that opened furnace vents automatically. By 1893, the company name was changed to the Electric Heat Regulator Company when patent rights were sold to William Sweatt, who ran the company for the next forty years. In 1927, it became Minneapolis-Honeywell Regulator Company, as the result of a merger. During World War II, Minneapolis-Honeywell was involved in developing precision optics for the military.<sup>175</sup> The company is best known to the general public for its heat regulating systems, embodied in the Honeywell Round thermostat designed by Henry Dreyfuss<sup>176</sup> and found in countless post-World War II American homes. Dragon Rock has one as well in the kitchen. Minneapolis-Honeywell, however, was also involved in other control mechanisms, such as those for electric light. In 1964, the company name changed to the current Honeywell, Inc.

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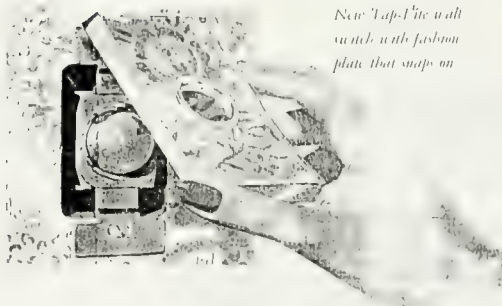
<sup>175</sup> *Hoover's Handbook of American Business 1997*, vol. 2, op. cit., 714.

<sup>176</sup> Pulos, op. cit., 341.





Ever see a light switch  
like *this*?



New Tap-Lite wall  
switch with fashion  
plate that snaps on

Put the extra sell of Tap-Lite into  
every room for as little as \$15 more per house!

Now—a *decorator* light switch that matches any wall in  
minutes! Snap-in wiring, installs easily. Line voltage. Tap  
—it's on! Tap —it's off! Talk it over with your electrician.

Tap-Lite by MINNEAPOLIS  
**Honeywell**



5-27

“1956 advertisement for Tap-lite®”

“Ever See a Light Switch Like *This*?,” advertisement in *House and Home* 10  
(October 1956): 251.





## 5.6 Unidentified Plastics

LOCATION	ITEM DESCRIPTION AND SURVEY NUMBER
House entry hall	<ul style="list-style-type: none"> <li>Transparent colorless coating for woven organic component for closet (HEH.1.a,b)</li> <li>Transparent colorless piece cladding the woven organic component for closet (acrylic?) (HEH.2)</li> </ul>
Lavatory-bar	<ul style="list-style-type: none"> <li>Transparent colorless lamination for obi panels at sink (LB.1.a-d)</li> <li>Matte white wall and door panels (decorative high-pressure laminates?) (LB.8.a-d)</li> </ul>
Living room	<ul style="list-style-type: none"> <li>Opaque white cabinet interior partition cladding (decorative high pressure laminate?) (LR.3.a-e)</li> </ul>
Dining room	<ul style="list-style-type: none"> <li>Opaque light beige colored magnet holders for cabinet doors (DR.6.a-e)</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li>Translucent off white plastic lining shelf directly under windows (polyester reinforced with fiberglass and parallel nylon strands?) (K.7.a-c)</li> </ul>
Harem bathroom	<ul style="list-style-type: none"> <li>Transparent yellow door knob (acrylic?) (HBa.5)</li> </ul>
Housekeeper's bedroom	<ul style="list-style-type: none"> <li>White and green curtain with transparent colorless pieces woven (HBa.18)</li> </ul>
Garage	<ul style="list-style-type: none"> <li>Textured translucent white light panels at ceiling (G.2.a, b)</li> </ul>
Studio toilet/ bathroom hall	<ul style="list-style-type: none"> <li>Opaque semi-glossy white ceiling light panels (STBH.1.a-c)</li> </ul>

## 5.7 Known Dislocated Plastics

CURRENT LOCATION	ITEM DESCRIPTION
Den-balcony	<ul style="list-style-type: none"> <li>Two acrylic panels sandwiching organic material for a sliding cabinet door. This is located just adjacent to the space where it was originally installed. (DB.3.a, b)</li> </ul>
Dining room	<ul style="list-style-type: none"> <li>Four white Formica® brand decorative high pressure laminates in the second from the southeast cabinet space: <b>1)</b> 8-1/8" (L) x 4 1/4" to 4-5/8" (D); <b>2)</b> 8 3/8" (L) x 8-3/8" (L) x 4-7/8" to 5-1/8" (D); <b>3)</b> 3-3/8" (L) x 9-1/8" (D); and <b>4)</b> 7 3/4" (L) x 13-3/8" (D). They were most likely used to clad the southwest cabinet in the kitchen.</li> </ul>
Kitchen	<ul style="list-style-type: none"> <li>One white Formica® brand decorative high pressure laminate in the southeast most and second from the top space of the southwest cabinet. This most likely belongs in another space of this cabinet.</li> <li>One Styrofoam® brand expanded foamed polystyrene panel located in the kitchen utility area. It could be a leftover piece from the ceiling of the house entry hall and lavatory-bar, since there are no visible missing pieces.</li> </ul>
Harem bathroom	<ul style="list-style-type: none"> <li>One transparent colorless door knob (acrylic?). This belongs on the French doors of this bathroom. (HBa.5)</li> </ul>
Housekeeper's bedroom	<ul style="list-style-type: none"> <li>One white Formica® brand decorative high pressure laminate next to the dresser. This piece most likely belongs on the dresser.</li> </ul>
Tool shed (?)	<ul style="list-style-type: none"> <li>One rectangular cellular core sandwiched by fiberglass reinforced acrylic panels partition. This once divided the studio entry hall from the studio bedroom. Although it is supposedly located in the tool shed on the property, the author could not locate it at the times of the visits.</li> </ul>



## 5.8 Known Missing Plastics

ORIGINAL LOCATION	ITEM DESCRIPTION
House entry hall	<ul style="list-style-type: none"><li>• One circular light switch plate.</li></ul>
Living room	<ul style="list-style-type: none"><li>• One white Formica® brand decorative high pressure laminate cladding for one of three sliding doors of the built-in cabinet.</li></ul>
Dining room	<ul style="list-style-type: none"><li>• A two part green Plexiglas® resin acrylic chandelier (This was the summer chandelier used over the dining room table. The <i>Interiors</i> journal article from September, 1961, describes it as “two Plexiglas® shells that contain 300 Christmas-tree bulbs in a nest of white fiber glass.”<sup>177</sup> It was made of Plexiglas®, an acrylic resin manufactured by Rohm and Haas. Today, the winter chandelier made of wrought iron with candles hangs year round).</li></ul>
Housekeeper's bedroom	<ul style="list-style-type: none"><li>• Eight matte white Formica® brand decorative high pressure laminate cladding for the built-in dressing table.</li><li>• Six matte white Formica® brand decorative high pressure laminate cladding for the southwest built-in bedside table.</li><li>• Eight matte white Formica® brand decorative high pressure laminate cladding for the southwest built-in bedside table.</li><li>• Fourteen matte white Formica® brand decorative high pressure laminate cladding for the built-in dresser.</li></ul>
Garage	<ul style="list-style-type: none"><li>• One circular light switch plate.</li></ul>

In most instances, the disappearance of the above components occurred during the period of minimal occupation after Wright's death. The most significant plastics loss in terms of quality is the Plexiglas® chandelier in the dining room. The significant losses in terms of quantity are the decorative laminates. Of course, there may be other components that are not listed above because no records of their existence were found by the author. There are some instances where it is not clear whether pieces were lost or were actually replaced by Wright. This is the case, for instance, with the decorative high-pressure laminate clad built-in furniture of both the studio bedroom and the studio (see Figures 5-12, 5-14, 5-28 and 5-29). Similar

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<sup>177</sup> Gueft, op. cit., 106.





5-28

“Studio bedroom in 1995”

Photograph by the author, 1995.





5-29

“Studio in 1995”

Photograph by the author, 1995.





built-in furniture in Annie's bedroom was taken out and replaced with the current sliding closet doors in 1968.<sup>178</sup>

## 5.9 Replaced Plastics (Harem Bathroom)

During the late summer of 1997, and into the fall, the **decorative high pressure laminates** of the harem bathroom sink (HBa.2.a-d) were replaced along with their plywood substrates. The laminates had been delaminating and the substrates rotting. Both were replaced with like materials. However, although the replacement laminates were manufactured by the Formica Corporation, the color and texture is not an exact match. Formica no longer manufactures the identical laminate. A similar one was used, although it is more matte and slightly lighter in color as compared to the original. The difference is especially noticeable with examples of the two side by side. However, without old laminate pieces for comparison, the difference is less apparent.

In addition to the laminates, a portion of the **fiberglass reinforced polyester** cladding on the northwest wall was removed. The removed piece, making up the northwest side of the harem bathtub, had leakage problems. Because of this and fixture problems, the bathroom had been unusable for three years. This northwest wall of the tub is now clad with ceramic mosaic tiles, as with the rest of the bathroom floor and tub. These tiles were also replaced. As with the decorative laminates, similar tiles were used. The fixtures at the sink and tub were replaced with very different units.<sup>179</sup>

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<sup>178</sup> Ann Wright, conversation with author, op. cit.

<sup>179</sup> Ibid.



## **DETERIORATION OF THE ARCHITECTURAL PLASTICS AT DRAGON ROCK**

### **6.1 Maintenance and Use History**

From the time Dragon Rock was completed in 1960 until Wright died in 1976, the house was regularly lived in and well-maintained. During the early years after the house was built when the Wright family had a live-in housekeeper, Diana Boyce. According to Wright's daughter Ann, she kept the house meticulously clean. Wright also had a cleaning woman come in once a week.<sup>180</sup> Until 1968, Wright maintained his design practice in the city. After his retirement, he began to reside at Dragon Rock full time.<sup>181</sup>

After his death, Manitoga and Dragon Rock were put in the hands of the Nature Conservancy, a non-profit private organization, which later formed Manitoga, Inc. During the latter years of Wright's life he had worked with the Nature Conservancy to preserve the land for future generations and to make it accessible to the general public. Ann was given life long tenancy. Immediately after Wright's death, however, Ann continued to live in New York City where she was already established. Thus, during the decade after Wright's death, the Nature Conservancy used the house. At this time, the house was generally either poorly used or simply neglected. Some significant levels of damage to the house occurred from 1983 to

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<sup>180</sup> Ann Wright, e-mail correspondence with author, 24 November 1997.

<sup>181</sup> Ann Wright, conversation with author, op. cit.



1987.<sup>182</sup> At one point during these years, a Manitoga, Inc. director interested in Native American artifacts kept animal hides stored in the house cabinet space.<sup>183</sup>

Today, Ann lives in the house with her family as their year-round residence. Dragon Rock has been their home for four years. The family has a cleaning person coming to the main house once a week.<sup>184</sup> Still, there are less used areas of the house, such as certain drawers and cabinet spaces, that are not regularly cleaned. Manitoga Inc. occupies the studio building as their office. Together they are working to restore Dragon Rock and to eventually open it up to the public as a house museum.

## **6.2 Current Deterioration Conditions**

Since their introduction and popularization, plastics have had a reputation of indestructibility. Time, however, has proven this to be untrue. Unlike most other building materials, these synthetics were not commonly used until well into the twentieth century. Most of the plastics at Dragon Rock are products which primarily became popular with the general public after World War II. Acrylic and polystyrene were less expensive, lighter in weight, and also, as a reflection of a more prosperous society, much more replaceable in nature than their predecessors such as Celluloid and Bakelite®. This, coupled with decades of use and during some periods, neglect, the plastic components at Dragon Rock are showing an overall sense of fragility. The following are deterioration factors that currently exist at Dragon Rock.<sup>185</sup> **More detailed descriptions for current condition can be found in Chapter 5 under the**

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<sup>182</sup> Ann Wright, e-mail correspondence with author, op. cit.

<sup>183</sup> Ibid.

<sup>184</sup> Ann Wright, conversation with author, op. cit.

<sup>185</sup> Deterioration factors of outdoor exposure and air pollution are not discussed since they are not pertinent for the plastics at Dragon Rock.



**heading “Condition” of each particular plastic type.** Components that have already been negatively affected are marked in bold:

### 6.2.1 Physical Abrasion and Deformation

Physical abrasion is the most significant factor for deterioration of the plastics at Dragon Rock. This deterioration is a result of the nature of the plastic material coupled, in some instances, with design problems. Both factors have been the case with the following: 1) **Fiberglass reinforced polyester dividers and shelves:** Although the dividers were not always meant to be regularly pulled in and out (in fact, several cannot be moved from their locations), the shelves were planned for movement. Both dividers and shelves are chipping at the corners in some cases, and deforming on the sides that rub against the guides. Some are more difficult to pull out than others. 2) **Polystyrene drawers:** Most of these drawers do not move easily along their slide-panels which are also made of polystyrene. This has resulted in some broken pieces. There are also holes at the bottom of some of the drawers in the kitchen utility area. Some of these appear to be the result of physical abrasion and others of a solvent solution. These drawers continue to be regularly used. 3) **Thermoplastic tambour door:** This is very difficult to open and close, although no breakage has resulted, perhaps because it is not regularly used. Of the other three that once existed in the house, one covered the dumbwaiter in the den-balcony and two covered the linen closet in the harem bedroom hall. They were taken out because, even when the house was fairly new, they were difficult to open and close.<sup>186</sup> 4) **Decorative high-pressure laminate clad cabinet doors:** In the living room, the plywood doors do not run smoothly along their guides, thus causing abrasion to both the door and their laminate claddings. 5) **Acrylic slide door panels:** Use over the years has

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<sup>186</sup> Ann Wright, conversation with author, op. cit





resulted in parallel horizontal scratch marks along some of the components. These acrylic components were designed to be opened and closed, which has resulted in physical abrasion. They are still regularly opened and closed by the family. These scratches are the greatest on Annie's bedroom closet doors. The den-balcony acrylic cabinet door did not run smoothly along its guide, and so is no longer in its original location.

In addition to damage to the acrylic elements, the sandwiched leaves of the cabinet door from the den-balcony, as well as the butterflies of the sliding door between the harem bathroom and bathroom hall, have also been affected by movement. Because of significant chipped corners and vibration from motion, the fragile dried leaves have been affected. Some of the butterfly wings have fallen most likely due to the movement of the sliding door. Because they face French doors open to southern exposure, the sun's effects may also be contributing to their deterioration. The organic material permanently embedded into acrylic panels have fared better.

Some components have deformed due to lack of adequate structural support: 1) The **epoxy coated fiberglass reinforced polyester panel** located at the balcony above the dining room is bowing because it is spanning too wide a space without enough support. This is most likely an original design flaw. 2) The side **fiberglass reinforced polyester panel** of the den-balcony closet is deformed at the bottom due to what appears to be an original design flaw. 3) One of the **fiberglass reinforced polyester vertical dividers** over the oven in the kitchen is deformed because a metal border on one edge is now missing. 4) The **fiberglass reinforced polyester ceiling light panel** at the stair landing between the house entry hall and kitchen is bowed on one edge because pressure is being applied by one side of the supporting wood frame. 5) One of the **polyester reinforced with fiberglass and parallel nylon strands**



**panels** at the kitchen ceiling is sagging on one side. This is because a portion of the supporting frame is missing. 6) The **acrylic wall embedded with organic material** in the studio bathroom has deformed on one side. Acrylic expands and contracts readily with changing temperatures. 7) One of **the acrylic sliding door panels sandwiching butterflies** in the harem bathroom is bowed near the bottom. In both cases, the acrylic may be deforming due to expansion and contraction. 8) One of the **decorative high-pressure laminate pieces** at the counterbalanced cabinet of the kitchen, has deformed slightly due to insufficient original structural support.

In some instances, original coatings have worn off. For example, the **lacquer coated red decorative high-pressure laminate doors** in the living room and dining room have deteriorated along the edges of the components.

Similarly, the metallic colored coating for the Minneapolis-Honeywell Regulator Company manufactured **switches** have been abraded in the middle as a result of continual use. These switches are in the house entry hall, den-balcony, kitchen, harem bedroom hall, harem bathroom hall, garage, studio entry hall and studio bathroom hall. Only the one located in the studio bedroom has not worn. Perhaps this was the least used switch.

Animals have caused or are potential causes for deterioration. There is a dog and two cats in the house. It appears they caused some mechanical damage to the **vinyl coated fabric covering of the sofa seat cushion**. There are mice in the kitchen. They have left droppings in the cabinet spaces, both under the kitchen sink, as well as at the service counter that divides the dining room from the kitchen. The acid from their droppings, as well as the possibility that they may gnaw on the components, makes them a source for plastics deterioration. There



were once rats in the kitchen as well. They entered through an opening in the liquor cabinet at the northeast wall. The hole has since been filled.

### **6.2.2 Natural and Artificial Light**

Natural sunlight is composed of invisible and visible light of varying wavelengths and energies. Visible light allows objects to be seen. Beyond the visible light spectrum is the infrared which is responsible for the transfer of heat, and the ultraviolet (UV).<sup>187</sup> Although all are responsible for some level of harm, UV is the most damaging for objects. Of the components in the house, wood, textiles as well as plastics are vulnerable to light. Sunlight and fluorescent light are sources of high levels of deterioration that are present at Dragon Rock. Tungsten light, which is also found throughout the house, is less harmful.<sup>188</sup> Steps need to be taken to reduce or mitigate light intensities and energies, with a particular focus on UV radiation.

The rooms with significant southern exposure are, the living room, dining room, harem bathroom, housekeeper's bedroom, Annie's bedroom, the ribbon windows at the house entry hall, studio bathroom and studio. There are floor to ceiling windows covering the height of two stories in the dining room. The incoming sunlight not only affects the dining room, but rooms that are open to it, such as the den-balcony, kitchen and especially the living room. The fluorescent lights are used behind acrylic and fiberglass reinforced polyester panels.

The mitigation of light levels at Dragon Rock needs to be done with special care and thought. Part of the experimental nature of Dragon Rock relies upon lighting and this plays an

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<sup>187</sup> Barbara Appelbaum, *Guide to Environmental Protection of Collections* (Madison, Connecticut: Sound View Press, 1991), 78.

<sup>188</sup> Garry Thomson, *The Museum Environment* (London: Butterworth & Co. Ltd., 1986), 16.





important role in the visual interpretation of the house. In the notes for the slide lecture of the house Wright wrote,

“I have done a lot of experimenting with the lighting; I have used fluorescent, incandescent, and a new phosphorous lighting – candlelight, oil flares, and and [sic] Indian oil lamp. I have used illuminated ceilings, illuminated walls for side-lighting of which I am very fond, clerestory window lighting; and much of the lighting is on dimmer systems.”<sup>189</sup>

Although aesthetically successful, some of these various light sources are unfortunate from a conservation viewpoint.

The negative effects of these energy sources can be seen on components such as some of the **fiberglass reinforced polyester light panels** that appear to have slightly yellowed. Others elements such as polymethyl methacrylate panels and decorative high-pressure laminates are not as susceptible. Fortunately, most of the Dragon Rock plastics in the path of direct sun and/or artificial lights do not appear to have been negatively affected thus far. Earlier plastics, most notably cellulose nitrate, are far more vulnerable to the negative effects of light.<sup>190</sup> The post-World War II generation of plastics have been less susceptible, but steps should be taken to prevent future potential deterioration.

### 6.2.3 Moisture and Temperature

Moisture and temperature are factors which may play a significant future role in the deterioration of the plastic components. Thus far, moisture has had a greater negative impact on other components of the house, especially wood. In addition to high relative humidity, high temperature is a factor with the effects of sunlight and especially the heat coming from heating vents throughout the house. These factors can increase the rates of chemical

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<sup>189</sup> Russel Wright, “Garrison Slide Lecture,” op. cit., 18.

<sup>190</sup> Ibid., 21.





deterioration of the plastics.<sup>191</sup> In the living room, dining room and housekeeper's bedroom, there are oil heating vents located directly below built-in furniture clad with decorative high pressure laminates. In the instance of the dining room, the heat is such that it reaches the polystyrene drawer above the cabinet space. The vents are not only the source for excessive heat, but also cause further fluctuations in temperature and relative humidity levels.

So far, several components appear to have been affected by moisture or heat. Although a correlation between delamination, and moisture or heat level has not been made, many of the **decorative high-pressure laminates** throughout the house have delaminated from their plywood substrates. It is possible that high temperatures have resulted in the failure of the adhesive, which is most likely contact cement. Several of these laminates are missing. Two acrylic **wall panels** cover Audubon prints. One is in the den-balcony and the other in the entry space into the housekeeper's bedroom. Both have some cracks, especially where there are nail holes in the component. It is possible that these components were not properly annealed as they should have been. This important step is sometimes skipped to cut costs. Plasticizers have migrated from the **polyvinyl chloride coated fabric of the accordion fold door** between the harem toilet and bathroom hall, resulting in a sticky film. It is highly likely that this is a result of heat and moisture from the adjacent bathroom.

### 6.3 Assessment of Current and Future Damage

Steps need to be taken today for the preservation of the plastics at Dragon Rock. Fortunately, none of the plastic components have deteriorated significantly, but to some extent have had their aesthetic qualities and intended use compromised. The plastic types at Dragon Rock are listed below in order of the level of existing and future potential damage, as well as

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<sup>191</sup> Blank, e-mail correspondence with author, 24 November 1997.



the significance of the components. When dealing with conservation strategies in Chapter 7, this assessment can be used as a guide to help determine the critical needs:

<b>RISK ASSESSMENT OF PLASTIC TYPES</b>	
<b>Greatest Risk</b>	
<b>Polystyrene</b>	Many of the drawers of this material have already been damaged due to physical abrasion through continual use. Further physical deterioration is a high risk factor should these components continue to be used.
<b>Fiberglass reinforced polyester</b>	The elements that are used as shelves or dividers have deformed and chipped somewhat due to physical abrasion. Additional threats exist should these components continue to be used. Other threats are with the ceiling light panels. Here, there appears to be some minor discoloration due to the effects of fluorescent lights. Also, there are some cracks in these panels. Some panels have bowed due to inefficient framing support. Intervention to prevent further deformation is necessary. Continued discoloration is a very real threat. A loss of tensile strength through embrittlement is also a threat which can lead to cracking.
<b>Fiberglass reinforced polyester with nylon strands</b>	Most of these components are used as ceiling light panels. There appears to be some discoloration due to the effects of fluorescent lights. In addition, some have cracks, one is bowing due to insufficient support due to a broken frame, and one has loose nylon strands. Intervention to prevent further deformation is necessary. Of the non-light panel applications, there may be some discoloration with the transparent pieces and there are scratches on the surface of the den-balcony counter top. Continued discoloration is a very real threat. A loss of tensile strength through embrittlement is also a threat which can lead to cracking.
<b>Decorative high-pressure laminate</b>	Several of the laminate pieces from the built-in furniture have delaminated from their plywood substrates. Most significantly, the one of the white cabinet door laminates of the living room is missing. The others may be susceptible to delamination as well. The doors, the kitchen counter top and garage counter top are the only laminates that do not appear to be threatened with delamination. The kitchen counter top, however, has deep scratches and wear. One laminate at the kitchen counter cabinet is slightly bowing.
<b>Epoxy coated fiberglass reinforced polyester with fiberglass behind</b>	This component has deformed at the top as there is not enough support. Intervention to prevent further deformation is necessary.
<b>Vinyl</b>	The seams of the vinyl coated fabric of the built-in furniture have torn in places. Without repair, the polyurethane foam will continue to deteriorate and the vinyl will tear further. The accordion fold door has released plasticizers. Plasticizers will continue to be released. The vinyl floor does not appear to have any immediate threat.
<b>Polyurethane foam</b>	There is embrittlement and discoloration of the exposed portions of the backrest cushion. The seat cushion is also exposed, and has slightly discolored. Further deterioration is an issue until these components are better protected from the environment, first by repairing the tear to the vinyl covers.
<b>Extruded thermoplastic</b>	There has been no noticeable deterioration of the component. Physical abrasion is a threat for this component, however, since it does not run smoothly along its guide.



<b>Polystyrene foam</b>	There appears to be some minor discoloration. Greater discoloration is a future issue as some of the foam is open to southern exposure.
<b>Polymethyl methacrylate</b>	Many examples of these panels are back lit with fluorescent lights. Although there are no evident signs of deterioration from light, future preventative care should be given. Deterioration from physical abrasion and bowing are sometimes evident. The organic elements that are sandwiched are also experiencing deterioration. These are the leaves of the den-balcony cabinet door and the butterflies of the sliding door of the harem bathroom.
<b>Styrene and acrylic rigid foam sandwiched by acrylic panels</b>	There is no noticeable deterioration thus far. However, there are fluorescent lights behind it that may lead to future deterioration. This would be detrimental since this is a significant component.
<b>Cellular core sandwiched by fiberglass reinforced acrylic panels</b>	There is no noticeable deterioration thus far. However, there are fluorescent lights behind it that may lead to future deterioration. This would be detrimental since this is a significant component.
<b>Epoxy</b>	There is no evidence of deterioration, except for a corner of the component which has broken off.
<b>Nylon</b>	This durable material is often used for hardware as it is at Dragon Rock. Because this component is protected from the elements, it is likely that it will continue to serve its purpose.
<b>Least Risk</b>	



## **CONSERVATION OF THE ARCHITECTURAL PLASTICS AT DRAGON ROCK**

### **7.1 Recommendations for Conservation**

As mentioned earlier, the house and studio buildings are both currently being used, the former as the home to Ann Wright and her family and the latter as the office space for Manitoga, Inc. From a general preservation point of view, the use of the house by the family is highly desirable because it retains its originally intended function as a single family dwelling. In addition, the family understands and cares for the legacy of Russel Wright and Dragon Rock. From a conservation point of view, however, continual normal use adds stress to building components, such as the plastic elements which are already being damaged by physical and environmental deterioration factors.

There are plans for Dragon Rock to eventually become a full-time house museum. Should Dragon Rock then be occupied by a caretaker, the level of wear to it, especially in the public spaces, could be reduced. Should the house not be occupied by a caretaker, there could be drastic reductions of stress on the plastic components including the positive effects of a lower temperature environment. Unfortunately, these options would create a level of sterility because the house would no longer be actively used. Drawers will be left unopened and sliding doors left immobile. This may be the price to pay in order to preserve original Wright designed components for future generations to appreciate. Meanwhile, although more drastic conservation options involving zero to minimal use of components cannot be implemented at





this time, some lesser steps can be taken by the family and their guests to reduce abuse to the plastic components.

Even as a house museum, however, there will still be problematic conservation issues at Dragon Rock. In general museum situations, an object is protected by simply moving it into surroundings where environmental conditions are controlled. This option does not exist for the architectural elements at Dragon Rock. In addition, the building itself is also a valuable historic artifact, so measures cannot be taken that would be harmful to it. These issues will need to be considered throughout the various steps taken towards conservation.

The conservation of the plastics at Dragon Rock is also complicated by the fact that research into this field is relatively new. There have been some work done by conservators, but the level of knowledge is still sparse. Architectural conservators working with this material today generally need to rely on the work of their museum counterparts and polymer scientists, manufacturers' literature, and their own original research.

A period of interpretation needs to be selected for the restoration and eventual conversion of Dragon Rock into a house museum. Dragon Rock was an experimental house. Wright saw it as an evolving entity and frequently made changes to its interior details. Thus, the period of restoration should be 1976, when Wright passed away. Any work that has been done by him since the original design and construction has a similar level of significance, for change was part of the nature of the house and a reflection of Wright's theories. Some, such as the decorative high-pressure laminates of the cabinet doors in the dining room, are from the original construction period, and others are later, such as the laminate counter in the garage from the early 1970s.



For many of the plastics in the house, advertisers at the time boasted of smooth surfaces that could be easily cleaned with a damp sponge. These components, however, have aged, and such easy care is no longer always recommended. They will need careful consideration before anything is done. This is the case for cleaning and repair, both of which could have the potential to be irreversible. It must also be remembered that the goal of conservation is not to create a pristine appearance. There are several phases involved in a comprehensive conservation program for the plastic components at Dragon Rock. Each needs to be considered with thought and care, especially since the condition of the components described in the previous chapters may likely change. In the order that these steps should be implemented, they are, 1) mitigating negative physical factors, 2) mitigating negative environmental factors, 3) cleaning and maintenance, 4) repairing damaged components, and 5) replacing dislocated, missing or damaged components.

## **7.2 Mitigating Negative Physical Factors**

The most significant conservation steps that need to be taken at Dragon Rock are preventative. The components at Dragon Rock are significant artifacts of an important American industrial designer. Thus, all other options should be investigated before replacement is considered. Fortunately, there are simple steps that can be taken which can help to mitigate some of the existing deterioration factors in the house. The most serious is mechanical abrasion. The best solution for mitigating damage to the fiberglass reinforced polyester dividers and shelves, polystyrene drawers, thermoplastic tambour door and acrylic slide door panels, is to never open or slide out these components after any necessary cleaning is done. After cleaning, the components that can still be reached should be dusted in situ. However, while the family still lives in the house, this may not be practical. Lubricants will



help the above components run more smoothly along their guides. Paraffin wax or hard micro-crystalline wax can be rubbed directly on the runner surface. Because these waxes have long chains and are fairly inert, they will not react with the plastics.<sup>192</sup> As long as these components continue to be used, special care must be taken when opening and closing them.

Some components have deformed because of lack of sufficient structural support. Many of these are fiberglass reinforced polyester panels. Each instance of deformation needs to be looked at individually before work is done on correcting structural issues. In some cases, the component may be able to be gently pushed back into its original position. In other instances, this may not be fully possible. This should, however, persuade the component back into its original form.<sup>193</sup>

Some of the acrylic paneled doors have scratches from being opened and closed regularly. In the instance of the door in the harem bathroom area and the cabinet door in the den-balcony, there is an additional concern because of movement has caused physical damage to the sandwiched organic materials as well. The acrylic paneled doors should be kept in a retracted position. While the house is regularly occupied, this would mean opening and closing the doors minimally.

Due to continual use, most of the coating on the light switches have worn in the middle. They should ideally be minimally used in order to prevent further wear of the coating. The wear of the coating, however, should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating or application of a clear stable protective coating such as Acryloid B72 could then be investigated.

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<sup>192</sup> Blank, e-mail correspondence with author, 18 November 1997.

<sup>193</sup> Blank, telephone conversation with author, op. cit.





The vinyl coated fabric of the sofa seat cushion appears to have received some damage from the family pets. As they are now, the vinyl should remain covered with a sacrificial slip cover. This protects it, not only from the animals, but also other environmental factors. The kitchen has some mice. The openings through which they come need to be closed off as much as feasible. Traps and poison can also be used, as long as they are out of reach of the pets in the house.

### **7.3 Mitigating Negative Environmental Factors**

#### **7.3.1 Natural and Artificial Light**

UV light levels of the house and studio from sun and fluorescent light need to be reduced, especially the southern exposure. Specially treated acrylic panels such as UF3 Plexiglas®, made by the Rohm and Haas Company, are often effective in blocking out UV radiation. They should be installed at every exterior window and door light. Often, these panels are screwed onto the sash of the original windows. This option, however, can be damaging to the frame, and can also be visually jarring. This would especially be the case at Dragon Rock, where the window openings generally have minimal curtain coverage. Other times, the panels are hung with small hooks screwed at the top of the frame in order to avoid condensation and to make cleaning easier.<sup>194</sup> To reduce the level of damage to the wood frame, glazer points are sometimes used as well. However, these may not be strong enough to hold the large UF3 panels necessary for the lights at Dragon Rock. Also, they may cause such large panels to deform.

For Dragon Rock, the panels would need to cause the least amount of damage to the wood frame, but also be effective at large window expanses that have minimal curtain

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<sup>194</sup> Appelbaum, op. cit., 80-81.





coverage. Maintaining the historic integrity of the house, and being aware of the potential for moisture entrapment between the acrylic panel and the sash are important considerations.<sup>195</sup> At Dragon Rock, individual attention needs to be placed on determining the best possible solution for these large lights. There are UV filtering plastic films that can be adhered to glass, but these are not recommended for Dragon Rock since they would compromise the historic integrity of the house. If not properly installed, they can bubble or result in other forms of adhesion failure.<sup>196</sup> They not only become less effective over the years, but removal is extremely difficult. This would most likely involve damage to the historic glass and wood frame.<sup>197</sup>

The Wright designed lighting system plays a significant role in the design interpretation of the house. Despite the potential negative impact of fluorescent lighting, especially on the fiberglass reinforced polyester panels, their removal would not be recommended. However, to minimize future potential effects, the lights should be used only when necessary. There are also inexpensive UV light filtering sleeves that can be used around fluorescent tubes and have a useful life span of about ten years.<sup>198</sup> Some tubes are also available with built-in filters.<sup>199</sup> They are highly recommended for use at Dragon Rock where fluorescent lights are not only prevalent, but also need to be retained because of their historic significance.

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<sup>195</sup> Ron Sheetz and Charles Fisher, "Museum Collections. Number 2. Reducing Visible and Ultraviolet Light Damage to Interior Wood Finishes," in *Preservation Tech Notes* series (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1990), 4.

<sup>196</sup> *Ibid.*, 3.

<sup>197</sup> John F. Bero, "Damn Windows: Protecting the Historic Interior from Sunlight," in *Window Rehabilitation Guide for Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1997), IV-56.

<sup>198</sup> Appelbaum, *op. cit.*, 81.

<sup>199</sup> Sheetz and Fisher, *op. cit.*, 4.



Curtains are often used to block out all spectrums of natural light. This is usually done in one of two ways. A sacrificial layer can be added behind the original curtain. Also, some conservators have opted to have a reproduction made of the original curtain to hang in the intended location, storing the original in a safe environmentally controlled location.<sup>200</sup> The use of curtains to protect historic interiors is desirable because it is a historic and unintrusive method for conservation. Unfortunately, this may not be an easy option at Dragon Rock. The curtains at the house are either translucent, as in the housekeeper's and Annie's bedrooms, or full of gaping holes, as in the dining room and with the brass fire screen adapted at the windows of the den-balcony. Despite the lack of historic opaque window coverings, it is possible that a thin sacrificial layer of fabric can be added behind these curtains. They could be used during periods of high amount of sun light and later, should Dragon Rock become a house museum, during closed hours. Further investigations should be made into this highly desirable option, since UF3 acrylic panels only deal with filtering UV radiation.

In addition, those components that can be moved away from light's harmful effects, such as slide doors that fit into wall pockets and drawers, should always be closed, and opened minimally.<sup>201</sup> Such action would also help preserve the organic material sandwiched between many of the acrylic panels. The butterflies of the sliding door in the harem bathroom are the most fragile of the organic elements and have been additionally affected by the vibration from the movement of the door. In order to reduce deterioration both to the plastic and organic elements, it may be the most feasible to never open the doors, but to show photographs to visitors instead. Such a decision would unfortunately add to the sterility of house museums

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<sup>200</sup> Ibid., 4.

<sup>201</sup> Susan Buck, "SPNEA Conservation Center. Paint and Finishes Analysis," draft for inclusion in condition assessment by Ann Beha Associates, 1995, 14.



mentioned earlier. As the family continues to use the house as their residence, it is less likely that doors would continually be kept in a retracted position.

### 7.3.2 Moisture and Temperature

Moisture as a result of high relative humidity<sup>202</sup> and flooding have been a continual problem at Dragon Rock. On November 2-3, 1995, Susan Buck from the Society for the Preservation of New England Antiquities (SPNEA) measured the relative humidity of the rooms at Dragon Rock. Most measurements were in the high 60 and low 70 percentile, with the highest in the kitchen at 82%.<sup>203</sup> In an ideal museum environment, the temperature is 68°F±2°F and the relative humidity is 50%±5%.<sup>204</sup> However, this is near impossible to achieve, even in a museum setting. High humidity levels are generally not as detrimental to synthetic plastics. However, it is important that the amount of moisture remains constant since many plastics do absorb some level of moisture. Fluctuation can add mechanical stress to the components, thus potentially encouraging physical deterioration.<sup>205</sup>

Heat from sun light and most significantly from heating vents, are important deterioration issues. Plastics have a large coefficient of thermal expansion. In other words, they expand and contract with variations in temperature to the extent of affecting the dimensions of a component. High temperatures also lead to greater degradation. Consideration should be given to reduce and maintain these factors, especially should repairs be made to the components, which will have to be flexible enough to keep from causing

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<sup>202</sup> Relative humidity is the measurement of the amount of moisture in the air as compared to the amount the air is able to hold at a given temperature, expressed as a percentage. When 100% saturation is reached indoors, condensation results.

<sup>203</sup> Buck, op. cit., 16.

<sup>204</sup> Konstanze Bachmann and Rebecca Anne Rushfield, "Principles of Storage," in Konstanze Bachmann, ed., *Conservation Concerns. Guide for Collectors and Curators* (Washington, D.C.: Smithsonian Institution Press, 1992), 6.

<sup>205</sup> Morgan, op. cit., 10.





damage.<sup>206</sup> The heating system should not be used frequently and only at low levels, even while the current family lives in the house.

The temperature and humidity levels can be monitored with room thermohygrometers or electronic monitoring systems.<sup>207</sup> It is important that there are no wild fluctuations. Complete climate control is not a desired option at Dragon Rock because of the historic nature of the house. Opening windows on fair days for ventilation is helpful to some extent for both the building fabric and the components inside.<sup>208</sup>

As with natural light, temperature and moisture levels are difficult to control for architectural components that cannot be moved and are housed in a building which is just as valuable. Once the family no longer resides in the house and the house becomes a full time house museum, controlling these factors will become easier. For one, should the house not be occupied by a caretaker, the humidity level of specific rooms will be lower because there will be little to no activity such as bathing or cooking that are significant sources for moisture.

Several decorative high-pressure laminate pieces have delaminated, the two acrylic wall panels attached to the walls with nails have cracked due to thermal fluctuations, and the vinyl coated fabric of the accordion-fold door have lost plasticizer, due to high levels of heat and moisture. These components will be less affected should the simple measures above be taken. Although moisture and temperature have not seriously affected the other plastics thus far, it is crucial for their future well-being to keep these levels constant and moderate.

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<sup>206</sup> Blank and Sale, *op. cit.*

<sup>207</sup> Frank Matero, thesis comments, November 1997.

<sup>208</sup> Thomson, *op. cit.*, 123.





*Steps for cleaning, repair or replacement need to be done with the guidance of a conservator knowledgeable of plastics popular after World War II. In addition, whatever work is done needs to be carefully documented.*

## **7.4 Cleaning and Maintenance**

Most of the plastics at Dragon Rock need nothing more than some light dusting. It should be remembered that cleaning is not always necessary. If there is some accumulation of grime, this should be cleaned using the simple steps listed below. Once components are cleaned, they should only be routinely dusted unless there comes another point when there is excess grime. This is because plastics are permeable enough so that water and cleaning makes it susceptible to hydrolytic degradation.<sup>209</sup> As with many repairs, “cleaning is not a reversible process.”<sup>210</sup> An exception can be made, however, for the decorative high-pressure laminate counter surfaces in the kitchen. This room is still being actively used today, and the continual wiping down of these surfaces is necessary. In addition, these surfaces, when adhered well to their substrates, can withstand water and cleaning.

### **7.4.1 General Cleaning**

1. First gently remove excess dirt from the surface with a soft cloth, brush or feather duster.
2. Then, if necessary, use a clean sponge with water with a few drops of a mild detergent (non-ionic detergents can cause crazing or remove original material on some plastics, so care should be given in the detergent selection). If the component is not excessively dirty, no detergent should be used. Continually rinse out the sponge so that the removed grime does not damage the surface.

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<sup>209</sup> Sharon Blank, thesis comments, op. cit.

<sup>210</sup> Blank and Sale, op. cit.



3. Afterwards, rinse very well with a sponge in clean water. If a detergent was used above, use a different sponge. Its residue can potentially have a negative impact on plastic materials if left behind.
4. Immediately wipe drip with an absorbent material.

The following are additional safety tips to keep from damaging the plastics:

1. **Test a small area first.** Before using any type of solution on a component, a small and preferably less significant or hidden area should be tested. The complexity of plastic materials means that there may be inclusions that have not been identified and taken into account. Even a carefully selected cleaning solution may not react as expected on the component.
2. **Organic solvents should not be used.** These include acetone, toluene and xylenes. Although there are repair situations where their use may be considered, the hazards they present are not worth the risk, especially for cleaning. The benefits of solvent use for removing surface grime are not worth the risks of causing damage. Even if there are no immediate signs of deterioration, solvents may still be attacking the plastics, resulting in stress crazing later. In the most serious situations, the solvent may dissolve the plastic. In more subtle but still damaging ways, the plastic components may swell, creating stress on polymer chains. This could lead to chain scission, thus chemically deteriorating the components. In addition, the evaporating solvent could swell additives out along with it.<sup>211</sup> The complexity of ingredients in plastics means that even if solvents do not negatively affect the resin, unidentified additives may be affected.<sup>212</sup>

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<sup>211</sup> Sharon Blank, "Practical Answers to Plastic Problems," in *Preprints of Contributions to the Modern Organic Materials Meeting* (Edinburgh, Scotland: SSCR Publications, 1988), 117.

<sup>212</sup> *Ibid.*, 116.



3. **Abrasives should not be used.** These can cause surface abrasion which can weaken the surface and make it vulnerable to deterioration. Also, luster or color changes, as well as visible scratch marks can result.<sup>213</sup>
4. **Moisture on metal adjacent to plastics should be avoided.** When cleaning plastic objects adjacent to metals, care should be given that moisture does not touch the metal or that it is dried immediately, so as to avoid corrosion which could negatively affect the plastic component as well.<sup>214</sup> This would apply, for example, to the fiberglass reinforced polyester panels that have metal borders and are used as shelves and dividers.
5. **Polymethyl methacrylate and polystyrene.** These are both durable plastics, but have surfaces that can easily be scratched. Extra care should be given when cleaning such surfaces. Caution should also be taken when using any type of cleaners for polymethyl methacrylate, for it can easily be damaged by products such as window spray cleaners.<sup>215</sup>

#### 7.4.2 Tape Adhesive Removal From Decorative High-Pressure Laminates

As previously mentioned, delamination has occurred with some of the decorative high-pressure laminates. Film tape had been applied to many of these pieces in order to correct the problem for the short term. Examples of this can be seen on several pieces of the lavatory-bar counter, the housekeeper's bedroom desk and night stands, and the studio counter. Most of these tape repairs have either broken in half due to the stress from the delaminating laminate piece, or have come off entirely. However, in all of the situations, the residue of the adhesive from the tape remain. These should be removed because degradation products from the tape

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<sup>213</sup> Frank Matero, thesis comments, op. cit.

<sup>214</sup> Morgan, op. cit., 49.

<sup>215</sup> [Rohm and Haas Company], op. cit., 28.



are harmful.<sup>216</sup> The removal of these cannot be accomplished simply with water. Mineral spirit should be used, initially in controlled applications. The solution should always be wiped off immediately.<sup>217</sup>

### **7.4.3 Splattered Paint on Various Plastic Elements**

Some decorative high-pressure laminate pieces such as the built-in furniture in the housekeeper's bedroom, fiberglass reinforced polyester elements such as the closet rack cover in the housekeeper's bedroom, and the switch and its surrounding plate in the studio bedroom, have had small amounts of paint splashed on them. Cautious mechanical removal either with a finger nail or scalpel. Extra care should be given when removing the paint from the switch which has an original coating. Should this mechanical method not be effective, latex paint can be removed by first soaking a cotton ball in water, which is then applied to the paint and allowed to soak for a short period.<sup>218</sup>

### **7.4.4 Unidentified Plastic of Dow Manufactured Curtain**

There are transparent plastic fibers woven into this curtain of synthetic fibers manufactured by the Dow Chemical Company. Currently the family puts the component into the washing machine for cleaning.<sup>219</sup> Despite its fragile appearance, the component has not shown any signs of deterioration from this. However, this may not be the case in the future because as the component ages, it will become increasingly fragile. Other options for cleaning, which should only be done when necessary, should be investigated. Consideration may be

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<sup>216</sup> Blank, e-mail correspondence with author, 18 November 1997, op. cit.

<sup>217</sup> Blank, thesis comments, op. cit.

<sup>218</sup> Blank, telephone conversation with author, op. cit.

<sup>219</sup> Ann Wright, conversation with author, op. cit.





given to provide a sacrificial layer of fabric behind the curtain. Whatever material is used, it must not interfere with the visual aesthetics of the historic element.

## **7.5 Repairing Damaged Components**

The repair of plastic components becomes an even more difficult and ethically challenging task than cleaning. Generally, it is advised that this should not be done unless absolutely necessary. The strongest bonds involve solvents, resulting in an alteration of the chemical makeup of the original component. Solutions used for repair easily migrate into the component because the molecules in plastics are highly mobile. This is problematic because both architectural and objects conservators prefer to use methods that are reversible. First, reversibility leaves the object open to take advantage of a future repair method that may be better suited to its needs and second, the chemical alteration of the plastic compromises its physical integrity. Solvents should generally be avoided whenever possible. The following are suggestions of repair for specific plastic types in the order of threat as listed in the chart under “6.3 Assessment of Current and Future Damage”:

### **7.5.1 Polystyrene**

There are several components at Dragon Rock, such as the polystyrene drawers in several of the rooms, which have pieces that have broken off. In some cases, the broken pieces have been saved, and other times they are lost. Epoxy is an effective adhesive because it can act as a solvent. Before it polymerizes, it dissolves some plastics to create a strong bond.<sup>220</sup> It changes the component chemically at the interface and is not reversible. Because the house is today still continually used by the family, repair, for the moment, is not advisable since epoxy could make for a very rigid bond. Opening and closing such drawers would be detrimental.

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<sup>220</sup> Blank, telephone conversation with author, op. cit.



Repair should be done only when the drawers will no longer be opened or closed, such as when Dragon Rock becomes a museum. Meanwhile, the broken pieces should be stored safely. For now, in order to prevent future breakage problems, these drawers should not hold objects that are too heavy or that have sharp edges. In addition, they should be opened and closed minimally and with care.

There are some holes and gashes at the bottoms of some of the polystyrene drawers. These may be able to be cosmetically infilled and inpainted. If this is done, care should be taken because dyes and other coloring materials travel rapidly into the component. Also, metal based colorants should never be used since they can deteriorate plastics.<sup>221</sup>

### **7.5.2 Fiberglass (and Nylon Strand) Reinforced Polyester**

There are two small tears in one of the fiberglass reinforced polyester ceiling light panels at the studio entry hall. The seam of the larger tear has a browning color, which may indicate a previous attempt at repair. There are also tears in the fiberglass and nylon strand reinforced polyester ceiling light panels of the kitchen. One of these tears also is has a brown color. Whether or not a previous repair was made should first be determined. Otherwise, a water-based adhesive would make a good enough, yet reversible bond.<sup>222</sup>

### **7.5.3 Decorative High-Pressure Laminate**

Some decorative high-pressure laminate pieces have delaminated from their substrates. In a few of these instances, the original pieces still exist. Current specifications provided by the Formica Corporation recommend contact, semi-rigid (PVAc) or rigid (urea or resorcinol)

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<sup>221</sup> Blank, thesis comments, op. cit.

<sup>222</sup> Blank and Sale, op. cit.



adhesives for use with standard grade high-pressure laminates.<sup>223</sup> Contact cement should be used, since this was most likely the original adhesive. The instructions for adhesive application should be carefully followed. Similar steps should be taken for any future delamination.

Some laminates also have holes that are the result of previous poor attempts at repair using nails or staples. These elements should be carefully removed because they are catalysts for degradation.<sup>224</sup> Laminate adhesive should then be applied to the element to properly adhere it. If the decision is made not to repair the holes, they will remain as visual records of the element's history of use. This would also be the case with the laminate kitchen countertop. However, should aesthetic concerns become an issue, such as when Dragon Rock becomes a house museum, repair by using a fill and inpainting, or replacement may be a viable option.

#### **7.5.4 Vinyl**

There is some migration of plasticizer from the vinyl coated fabric of the accordion-fold door. Whether or not this should be cleaned is a debatable topic. By leaving the plasticizer, the surface can attract dust and moisture. This can lead to degradation. However, removing the plasticizer is also problematic. This can lead to embrittlement of the vinyl and to further migration of the plasticizers. In addition, it can be argued that keeping the plasticizer can act as a protective layer preventing oxidation. Should the decision be made to remove this layer, it can be done with mild detergents or ethanol.<sup>225</sup> Ethanol, however, may affect the base material.<sup>226</sup>

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<sup>223</sup> "How to Specify," [[http://www.formica.com/collection/fbl/info/fbl\\_specify.htm](http://www.formica.com/collection/fbl/info/fbl_specify.htm)], 1.

<sup>224</sup> Blank, e-mail correspondence with author, 18 November 1997, op. cit.

<sup>225</sup> Blank, e-mail correspondence with author, 17 November 1997, op. cit.

<sup>226</sup> Blank, "An Introduction to Plastics and Rubbers in Collections," op. cit., 59.



### 7.5.5 Polymethyl Methacrylate

There are some components, such as the sliding cabinet door in the den-balcony, which have fairly deep and visible scratches, as well as chips. Fill cast in place may be considered for these. The fill is most useful when it is the same material as the original, in this case acrylic. This is, however, not a reversible process. The fill will affect the original component at the interface. In addition, it will shrink upon polymerization and matching the refractive index of acrylic is complicated. Experience is necessary for this repair to be effective. A separately cast fill is not only reversible but is also allowed to pre-shrink. However, it does not easily blend in the rest of the material.<sup>227</sup> This would be beneficial for the purposes of differentiating original from replacement material, however, would be aesthetically intrusive. Any adhesives used must not contain solvents, for this can lead to stress crazing and cracking due to the absorption of solvents, or production of heat due to exothermic reactions. Water and petroleum spirits are the only solvents acceptable on polymethyl methacrylate.<sup>228</sup> The older the acrylic, the more likely it would be negatively affected by solvents because it absorbs moisture from the environment.<sup>229</sup> In addition, care should be taken because the transparent nature of the material means that adhesives are visible after repair.

Repair should never involve any loss of original material. In other words, sanding or buffing would perhaps return a shine and something close to the original appearance, but at the loss of original material, which is not an acceptable conservation practice. This also exposes

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<sup>227</sup> Blank and Sale, op. cit.

<sup>228</sup> Sale, op. cit., 327.

<sup>229</sup> Ibid., 326.





new surface area to degradation.<sup>230</sup> Making historic objects look new is not the objective of effective conservation.

Rohm and Haas literature from the early 1960s recommends using hard automobile paste wax to fill in minor scratches and to improve the surface appearance.<sup>231</sup> This is not recommended, however, since there is a mineral spirit solvent in the paste wax.<sup>232</sup> As noted earlier, solvents are not generally recommended for use with acrylics.

There are organic elements of leaves and butterflies sandwiched between plastic components that have begun to deteriorate. Future repair options for these need to be considered by a conservator knowledgeable of such material.

## **7.6 Replacing Dislocated, Missing or Damaged Components**

There are several plastic components in the house which no longer exist where they were originally installed. Of these, some have been stored elsewhere. For example, the top rectangular partition made of styrene and acrylic rigid foam sandwiched between acrylic panels, that once divided the studio entry hall from the studio bedroom, is now supposedly kept in a tool shed on the Dragon Rock property (The author, however, could not locate the panel). There is a plastic door knob for the French doors of the harem bathroom which is no longer in place. There are also several laminate pieces which, after some investigation as to their original locations, can be readhered to their substrates.

Others such as the Plexiglas® chandelier, however, are lost. In still other cases, it is not clear whether components were lost or simply replaced by Wright over time. Careful

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<sup>230</sup> Blank, thesis comments, op. cit.

<sup>231</sup> [Rohm and Haas Company], op. cit., 28.

<sup>232</sup> Blank, e-mail correspondence with author, 17 November 1997, op. cit.



research needs to be made to determine the differences between the two as clearly as possible. The missing or damaged pieces can be replicated and replaced. The necessity and desire to do this, however, must be determined. The current situation of Wright's daughter and her family residing in the house does not immediately warrant certain types of replacements. This would be the case, for example, with the "summer" acrylic chandelier over the dining room. The "winter" wrought iron chandelier is still intact and usable. However, it would be preferable to replace other missing pieces, such as the Formica® laminates for the housekeeper's dressing table and bedside table. These are more common pieces that are easier to replace, and their absence also makes a difference in the immediate aesthetics of the built-in furniture pieces.

When the house is reverted to the management of Manitoga, Inc., however, the replacement of more unique pieces such as the acrylic chandelier becomes an issue to be considered. By that time, regular tours of the house would most likely be conducted. A more accurate interpretation of the house, including evidence of the seasonal changes of the interior appearance at Dragon Rock by Wright, would be desirable.

Also an issue when Dragon Rock becomes a full time house museum, is the replacement of damaged plastic elements. A determination must be made whether to consider visual integrity or authenticity of material. The more unique components that serve decorative purposes, however, should not be replaced. For example, the damaged white decorative high-pressure laminate kitchen countertops could be replaced with the same commercial laminates of similar color and gloss level, ideally manufactured by the Formica Corporation. The damaged lacquer coated red laminates of the cabinet doors in the living room and dining room, however, are unique designs of Wright that should be retained. The two acrylic panels of the sliding cabinet door of the den-balcony have deep scratches and chipped corners. Although



the component itself is an original Wright design, the panels used are not, and similar elements can be found.

Matching the exact color and texture for components such as laminates, however, may be difficult to do because pattern options have changed. As noted in “5.8 Replaced Plastics (Harem Bathroom),” some original plastic components in the harem bathroom have recently been replaced. An exact match could not be made of the “light aqua” laminates even though they were purchased from the Formica Corporation, the original manufacturer. It is ironic that plastic components such as these which were meant to be easily replaceable, have become difficult to do because of changes in products and manufacturers.

When additional decisions to replicate and replace components are made, no original material should ever be discarded. They should be carefully documented and stored, preferably in a climate controlled environment. In addition, good records should be kept of the replacement of lost components. Otherwise, future generations may not be able to distinguish original from replacement components without analytical techniques.



## CONCLUSION

Russel Wright played an important role in the cultural and social history of the United States in the twentieth century. For a quarter of a century, his industrial designs, especially in dinnerware, became a standard on the dining room table for a large section of the middle class American population. In addition, Russel and Mary wrote a widely used book *Mary and Russel Wright's Guide to Easier Living*, which gave tips on how to make everyday tasks "simpler" in order to have more casual time. With his home, Dragon Rock, he was able to further his design ideas in a coordinated "experiment" professing his concepts of total modern living. Always intrigued by new technology, plastic components played a significant role in the design of the house.

Today Dragon Rock and the surrounding Manitoga are on the National Register for Historic Places designated by the United States Secretary of the Interior through the National Park Service, which recognizes its significance in the country at the state and local levels. It is also under consideration for another federal designation of National Historic Landmark, which would rightfully give recognition to Wright's extensive influence on the entire nation. This would also be appropriate because Dragon Rock is the best and most intact architectural example that is directly associated with Russel Wright. Although he and Mary implemented many of their ideals into their city homes and offices, these are no longer in the hands of the family and apparently do not retain furnishing and features reflective of Wright's work.





Unfortunately, after over thirty five years, the house today shows signs of deterioration. Moisture and natural light are abundant in certain parts of the house; many of the organic building materials have been affected by nature's effects. The room most affected by this problem has been the kitchen, in which certain components, such as the original floors, had to be replaced due to dampness. Generally, the plastic components in the house have thus far been less visibly affected by these negative environmental factors. Much of their deterioration is more due to mechanical damage caused most likely, not only by decades of use, but also by some poor design and periods of neglect the house experienced.

Despite damage and some loss of original material, the house retains a significant amount of fabric dating to Wright's occupancy. In addition, the original landscape created by Wright has been restored and maintained based on a study made by Carol L. Franklin. Fortunately, the house is currently occupied by Wright's family and will hopefully have a secure future under the management of Manitoga, Inc. Together they are working to restore the house and eventually make it more accessible to the general public by opening it up as a house museum.

It is hoped that this study would be used in conjunction with the condition assessment and preservation master plan made by Ann Beha Associates in 1996. SPNEA worked on the conservation portion of that report. Because the house had never been restored or remodeled until the restoration work of the harem bathroom during the summer of 1997, future work on the house would be an exciting and significant venture. More significantly, it is hoped that this study would intervene with preventive conservation to lessen future potential plastics deterioration. Without these interventions in the near future, the outlook for the house, including the plastic components, is sure to be uncertain.



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## **APPENDIX: Materials and Condition Survey**

**(Note: The brief recommendations under “Maintenance and Conservation” of this survey should be used in combination with information in Chapter 7 of this paper. Any work involving cleaning or repair needs to be done with the guidance of a trained conservator knowledgeable of plastics.)**





**H.1**

**HOUSE ENTRY HALL**



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Sliding closet door
<b>Component Number:</b> HEH.1.a
<b>Location:</b> Northeast wall of the closet area of the entry hall
<b>Plastic Type:</b> Coating
<b>Color:</b> Transparent colorless
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 94" (H) x 24" (L)
<b>Other Similar or Identical Elements:</b> There were originally three such identical laminated pieces for three separate closet doors. Today, the middle element is missing. This is the northwest component [There is a separate acrylic (?) plastic panel (HEH.2) covering this component which is missing from both of the other sliding doors].
<b>Additional Description:</b> This is a woven mat piece coated with plastic. It is rougher on the side that faces the inside of the closet. The component is framed with wood.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> Coating
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There does not appear to be any deterioration of this component.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some effect from the light of the entry hall door. 2) <i>Artificial light:</i> There are two fluorescent lights located in a row at the top of the entire closet.
<b>Maintenance and Conservation:</b> The fluorescent lights should be covered with plastic sleeves that filter UV radiation and minimally used. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. A UF3 panel should be attached to the door to cover the light in order to filter UV radiation. Light dusting as needed.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** March 6, 1997

**Weather:** Windy with partly cloudy skies and periods of sunshine

**ROOM INFORMATION**

**Building:** House

**Room:** House entry hall

**Room Number:** H.1

**Exposure:** Northwest/southeast (minimal)

**MATERIAL DESCRIPTION**

**Component:** Sliding closet door

**Component Number:** HEH.1.b

**Location:** Northeast wall of the closet area of the entry hall

**Plastic Type:** Coating

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 94" (H) x 24" (L)

**Other Similar or Identical Elements:** There were originally three such identical laminated pieces for three separate closet doors. Today, the middle element is missing. This is the southeast component.

**Additional Description:** This is a woven mat piece coated with plastic. It is rougher on the side that faces the inside of the closet. The component is framed with wood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Coating

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There does not appear to be any deterioration of this component.

**Environmental Factors:** 1) *Natural light:* There is some effect from the light of the entry hall door. 2)

*Artificial light:* There are two fluorescent lights located in a row at the top of the entire closet.

**Maintenance and Conservation:** The fluorescent lights should be covered with plastic sleeves that filter UV radiation and minimally used. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. A UF3 panel should be attached to the door to cover the light in order to filter UV radiation. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Sliding closet door
<b>Component Number:</b> HEH.2
<b>Location:</b> Northeast wall of the closet area of the entrance hall
<b>Plastic Type:</b> Acrylic (?)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 94" (H) x 24" (L)
<b>Other Similar or Identical Elements:</b> No. However, there were most likely originally three identical pieces. The other two, for the middle and southeast doors, are today missing.
<b>Additional Description:</b> This component covers the coated woven mat piece at the northwest closet door (HEH.1.a). The component is framed with wood.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> Casting
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There does not appear to be any deterioration of this component.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some effect from the light of the entry hall door. 2) <i>Artificial light:</i> There are two fluorescent lights located in a row at the top of the entire closet.
<b>Maintenance and Conservation:</b> The fluorescent lights should be covered with plastic sleeves that filter UV radiation and minimally used. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. A UF3 panel should be attached to the door to cover the light in order to filter UV radiation. Light dusting as needed.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK	
<b>Surveyor:</b>	Christeen Taniguchi
<b>Date:</b>	October 17, 1997
<b>Weather:</b>	Cold and sunny
<b>ROOM INFORMATION</b>	
<b>Building:</b>	House
<b>Room:</b>	House entry hall
<b>Room Number:</b>	H.1
<b>Exposure:</b>	Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>	
<b>Component:</b>	Floor
<b>Component Number:</b>	HEH.3
<b>Location:</b>	At landing right after the stairs of the entry and at the entry closet area
<b>Plastic Type:</b>	Vinyl
<b>Color:</b>	Beige with white inclusions
<b>Shape:</b>	Irregular
<b>Size:</b>	est. 30 square feet
<b>Other Similar or Identical Elements:</b>	No
<b>Additional Description:</b>	
<b>Alterations:</b>	No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>	
<b>Resin Trade Name:</b>	(unknown)
<b>Resin Manufacturer:</b>	(unknown)
<b>Processing Method:</b>	(unknown) (DETERMINE)
<b>Processed Product Trade Name:</b>	(unknown)
<b>Processor:</b>	Armstrong Cork Company; Lancaster, PA
<b>Fabricator:</b>	(unknown)
<b>CONDITION SURVEY</b>	
<b>General Condition:</b>	Good
<b>Description:</b>	At the interval between the entry area and the closet, there are some scuff marks. This is one of two primary points of entry into the house, so there is continual use of the surface.
<b>Environmental Factors:</b>	1) Natural light: There is some sunlight from the southeast entry door and the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b>	UF3 panels should be attached to the entry door and windows to cover the lights in order to filter UV radiation. The component needs only to be swept on a regular basis, and occasionally cleaned with soap and if necessary a mild detergent, rinsed thoroughly and dried immediately.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Ceiling
<b>Component Number:</b> HEH.4.a-aa
<b>Location:</b> Over the entry hall, hall leading to the harem area, the landing connecting the lavatory-bar and the den-balcony, and the stairs leading to the basement.
<b>Plastic Type:</b> Expanded foamed polystyrene
<b>Color:</b> Opaque off white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 100" (L) x 8 ¾" (D) for all except the three over the hall leading to the harem area: 113" (L) x 8 ¾" (D) (all are estimates)
<b>Other Similar or Identical Elements:</b> There are 27 components in all. However, there are 10 other foam panels over the lavatory-bar, which are documented separately. The panels leading to the harem area are HEH.4.y-aa. The rest are HEH.4.a-x.
<b>Additional Description:</b> This is all exposed and held up by a wood ceiling frame. The sixth from northeast on the side near the entrance hall has a vertical wooden element adjacent to it.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> Dow Chemical Company; Midland, Michigan
<b>Processing Method:</b> Extruded foam molding
<b>Processed Product Trade Name:</b> Styrofoam®
<b>Processor:</b> Dow Chemical Company; Midland, Michigan
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are some minor mechanical damage and some minor external staining. The material may however, discolor a little over time.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights as well as some from the southeast entry door.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the entry door and window openings through the use of UF3 acrylic panels.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Plant holder
<b>Component Number:</b> HEH.5.a
<b>Location:</b> Just below the ceiling at the southwest side of the hall
<b>Plastic Type:</b> Decorative high-pressure laminate
<b>Color:</b> Semi-glossy opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 22 1/2" (H) x 120" (L) x 1/16" (D)
<b>Other Similar or Identical Elements:</b> There are five components in all. This is the southeast half of the front of the planter.
<b>Additional Description:</b> (none)
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (Subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no visible deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the window openings through the use of UF3 acrylic panels.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Plant holder
<b>Component Number:</b> HEH.5.b
<b>Location:</b> Just below the ceiling at the southwest side of the hall.
<b>Plastic Type:</b> Decorative high-pressure laminate
<b>Color:</b> Semi-glossy opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 22 1/2" (H) x 38 1/2" (L) x 1/16" (D)
<b>Other Similar or Identical Elements:</b> There are five components in all. This is the northwest half of the front of the planter.
<b>Additional Description:</b> (none)
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (Subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no visible deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the window openings through the use of UF3 acrylic panels.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Plant holder
<b>Component Number:</b> HEH.5.c
<b>Location:</b> Just below the ceiling at the southwest side of the hall.
<b>Plastic Type:</b> Decorative high-pressure laminate
<b>Color:</b> Semi-glossy opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 1/16" (H) x 120" (L) x 11 3/4" (D)
<b>Other Similar or Identical Elements:</b> There are five components in all. This is the southeast half of the bottom of the planter.
<b>Additional Description:</b> (none)
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (Subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is a vertical crack near the center of the component. There is some discoloration along the crack, perhaps indicating a past repair attempt.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the window openings through the use of UF3 acrylic panels. The crack could perhaps be inpainted.



<b>MATERIALS AND CONDITION SURVEY:  INTERIOR PLASTIC COMPONENTS AT  DRAGON ROCK IN GARRISON, NEW YORK</b>	
<b>Surveyor:</b>	Christeen Taniguchi
<b>Date:</b>	October 17, 1997
<b>Weather:</b>	Cold and sunny
<b>ROOM INFORMATION</b>	
<b>Building:</b>	House
<b>Room:</b>	House entry hall
<b>Room Number:</b>	H.1
<b>Exposure:</b>	Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>	
<b>Component:</b>	Plant holder
<b>Component Number:</b>	HEH.5.d
<b>Location:</b>	Just below the ceiling at the southwest side of the hall.
<b>Plastic Type:</b>	Decorative high-pressure laminate
<b>Color:</b>	Semi-glossy opaque white
<b>Shape:</b>	Flat and rectangular
<b>Size:</b>	1/16" (H) x 38 1/2" (L) x 6 3/4" (D)
<b>Other Similar or Identical Elements:</b>	There are five components in all. This is the northwest half of the bottom of the planter.
<b>Additional Description:</b>	(none)
<b>Alterations:</b>	No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>	
<b>Resin Trade Name:</b>	(unknown)
<b>Resin Manufacturer:</b>	(unknown)
<b>Processing Method:</b>	High-pressure lamination
<b>Processed Product Trade Name:</b>	Formica®
<b>Processor:</b>	Formica Corporation; Cincinnati, OH (Subsidiary of American Cyanamid Co.)
<b>Fabricator:</b>	(unknown)
<b>CONDITION SURVEY</b>	
<b>General Condition:</b>	Good
<b>Description:</b>	There is no visible deterioration.
<b>Environmental Factors:</b>	1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b>	UV radiation from sunlight should be reduced from the window openings through the use of UF3 acrylic panels.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Northwest/southeast (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Plant holder
<b>Component Number:</b> HEH.5.e
<b>Location:</b> Just below the ceiling at the southwest side of the hall.
<b>Plastic Type:</b> Decorative high-pressure laminate
<b>Color:</b> Semi-glossy opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 1 1/2" (H) x 52" (L) x 1/16" (D)
<b>Other Similar or Identical Elements:</b> There are five components in all. This is at the southeast half of the planter and faces the living room.
<b>Additional Description:</b> (none)
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (Subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no visible deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the window openings through the use of UF3 acrylic panels.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
Surveyor: Christeen Taniguchi
Date: March 6, 1997
Weather: Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
Building: House
Room: House entry hall
Room Number: H.1
Exposure: Southeast
<b>MATERIAL DESCRIPTION</b>
Component: Light switch
Component Number: HEH.6.a
Location: Northwest wall below coat racks
Plastic Type: (unknown)
Color: Opaque brown with bronze colored coating at outer edge that is nearly gone
Shape: Circular
Size: 1-1/8" diameter
Other Similar or Identical Elements: There are five identical light switches. This is the southwest most switch.
Additional Description: The light switch is framed by a switch plate (HEH.7.a) and there is black paper underneath the plate.
Alterations: No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
Resin Trade Name: (unknown)
Resin Manufacturer: (unknown)
Processing Method: (unknown)
Processed Product Trade Name: (unknown)
Processor: (unknown)
Fabricator: Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
General Condition: Good
Description: The coating at the middle is worn.
Environmental Factors: 1) <i>Natural light</i> : There is some sunlight from the southeast entry door. 2) <i>Human</i> : Hands touch the switch.
Maintenance and Conservation: If possible, the switch should be minimally used to prevent further loss of the coating. The component should be lightly dusted as needed. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> HEH.6.b
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Opaque white with bronze colored coating at outer edge, with some green color at transition
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are five identical light switches. This is the second from the southwest most switch.
<b>Additional Description:</b> The light switch is framed by a switch plate (HEH.7.b) and there is black paper underneath the plate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> The coating at the middle is worn.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door. 2) <i>Human:</i> Hands touch the switch.
<b>Maintenance and Conservation:</b> If possible, the switch should be minimally used to prevent further loss of the coating. The component should be lightly dusted as needed. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> HEH.6.c
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Opaque brown with bronze colored coating at outer edge
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are five identical light switches. This is the third from the southwest most switch.
<b>Additional Description:</b> The light switch is framed by a switch plate (HEH.7.c) and there is black paper underneath the plate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> The coating at the middle is worn.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door. 2) <i>Human:</i> Hands touch the switch.
<b>Maintenance and Conservation:</b> If possible, the switch should be minimally used to prevent further loss of the coating. The component should be lightly dusted as needed. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** March 6, 1997

**Weather:** Windy with partly cloudy skies and periods of sunshine

**ROOM INFORMATION**

**Building:** House

**Room:** House entry hall

**Room Number:** H.1

**Exposure:** Southeast

**MATERIAL DESCRIPTION**

**Component:** Light switch

**Component Number:** HEH.6.d

**Location:** Northwest wall below coat racks

**Plastic Type:** (unknown)

**Color:** Opaque brown with bronze colored coating at outer edge

**Shape:** Circular

**Size:** 1-1/8" diameter

**Other Similar or Identical Elements:** There are five identical light switches. This is the fourth from the southwest most switch.

**Additional Description:** The light switch is framed by a switch plate (HEH.7.d) and there is black paper underneath the plate.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** The coating at the middle is worn.

**Environmental Factors:** 1) *Natural light:* There is some sunlight from the southeast entry door. 2) *Human:* Hands touch the switch.

**Maintenance and Conservation:** If possible, the switch should be minimally used to prevent further loss of the coating. The component should be lightly dusted as needed. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> HEH.6.e
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Opaque white with the shadow of a coating at the outer edge
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are five identical light switches. This is the northeast most switch.
<b>Additional Description:</b> The light switch was once framed by a switch plate and black paper, but they are now missing.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> The coating has worn off entirely.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door. 2) <i>Human:</i> Hands touch the switch.
<b>Maintenance and Conservation:</b> If possible, the switch should be minimally used to prevent further loss of the coating. The component should be lightly dusted as needed. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch plate
<b>Component Number:</b> HEH.7.a
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Donut-shaped
<b>Size:</b> 2 1/2" diameter
<b>Other Similar or Identical Elements:</b> There are four identical switch plates. This is the southwest most plate. The northeast most plate is missing.
<b>Additional Description:</b> The switch plate frames a circular switch (HEH.6.a) and there is black paper underneath.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no sign of deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel. The component should be lightly dusted as needed.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** March 6, 1997

**Weather:** Windy with partly cloudy skies and periods of sunshine

**ROOM INFORMATION**

**Building:** House

**Room:** House entry hall

**Room Number:** H.1

**Exposure:** Southeast

**MATERIAL DESCRIPTION**

**Component:** Light switch plate

**Component Number:** HEH.7.b

**Location:** Northwest wall below coat racks

**Plastic Type:** (unknown)

**Color:** Transparent colorless

**Shape:** Donut-shaped

**Size:** 2 ½" diameter

**Other Similar or Identical Elements:** There are four identical switch plates. This is the second from the southwest most plate. The northeast most plate is missing.

**Additional Description:** The switch plate frames a circular switch (HEH.6.b) and there is black paper underneath.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There is no sign of deterioration.

**Environmental Factors:** 1) *Natural light:* There is some sunlight from the southeast entry door.

**Maintenance and Conservation:** UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel. The component should be lightly dusted as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch plate
<b>Component Number:</b> HEH.7.c
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Donut-shaped
<b>Size:</b> 2 1/2" diameter
<b>Other Similar or Identical Elements:</b> There are four identical switch plates. This is the third from the southwest most plate. The northeast most plate is missing.
<b>Additional Description:</b> The switch plate frames a circular switch (HEH.6.c) and there is black paper underneath.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no sign of deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel. The component should be lightly dusted as needed.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> House entry hall
<b>Room Number:</b> H.1
<b>Exposure:</b> Southeast
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch plate
<b>Component Number:</b> HEH.7.d
<b>Location:</b> Northwest wall below coat racks
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Donut-shaped
<b>Size:</b> 2 1/2" diameter
<b>Other Similar or Identical Elements:</b> There are four identical switch plates. This is the fourth from the southwest most plate. The northeast most plate is missing.
<b>Additional Description:</b> The switch plate frames a circular switch (HEH.6.d) and there is black paper underneath.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no sign of deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is some sunlight from the southeast entry door.
<b>Maintenance and Conservation:</b> UV radiation from sunlight should be reduced from the entry door through the use of a UF3 acrylic panel. The component should be lightly dusted as needed.



















## **H.2            DEN-BALCONY**





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Sliding closet door

**Component Number:** DB.1

**Location:** Closet door built-in against the northeast wall

**Plastic Type:** Acrylic

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** est. 59 1/4" (H) x 35 1/4" (L) x 1/8" (D)

**Other Similar or Identical Elements:** No

**Additional Description:** The "Wild Turkey" image of a Audubon print is surrounded by a white cloudy frame. The back of the panel is colored white to achieve this, with what appears to be spray paint.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Casting

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** The plastic itself is in good condition, although there is a crack to the right of the bird's head (crack is about 5 inches long). Of the 34 nail holes, only three areas of the holes have not bowed outward beyond the length of the nail. There are thirteen nails remaining.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* There is one artificial circular light bulb to the northwest of the component.

**Maintenance and Conservation:** The door should be opened and closed minimally to reduce the stress of the component against the nails which can cause additional cracks. UF3 panels should be attached to the frames of the windows for filtering UV radiation. The component should be lightly dusted only as needed. Acrylics are easily scratched, so care should be taken. The temperature should be kept moderate to reduce the cracks at the nail holes of the wall panel.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Panel

**Component Number:** DB.2

**Location:** Southeast side of the closet and dumbwaiter at the northeast wall

**Plastic Type:** Fiberglass reinforced polyester

**Color:** Semi-translucent off white

**Shape:** Flat and rectangular

**Size:** est. 93" (H) x 22 ¾" (D) (finished opening)

**Other Similar or Identical Elements:** No

**Additional Description:** This is one long piece covering the entire height of the closet and dumbwaiter. Wood frames the component.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Reinforced molding

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair to poor

**Description:** The component has bowed inward towards the bottom, most likely due to inadequate structural support from its original design. There is a small crack in the lower middle which is brown. It is about two inches long. Perhaps an attempt to repair had been made. There is a larger crack in the lower left portion. It is about four inches long and is a result of the bowing.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* There are fluorescent lights behind the component.

**Maintenance and Conservation:** The light behind the panel should be used minimally. In addition, they should be covered with plastic sleeves that are meant to reduce UV radiation levels. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. UF3 panels should be attached to the frames of the windows for filtering UV radiation. The deformation of the component needs to be corrected with additional supports. The plastic may be able to be gently placed back into its original shape. Care should be given not to do additional harm to the already deformed panel. The brown coloring of the crack may indicate a previous attempt at repair. It can be repaired with a water based adhesive. Light dusting as needed.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Sliding cabinet door

**Component Number:** DB.3.a

**Location:** Southeast side of the southwest wall

**Plastic Type:** Acrylic

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 29 1/2" (H) x 38-7/8" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There is a matching panel that creates the sandwich.

**Additional Description:** Along with another identical panel, they sandwich various organic materials. Underneath this component, there are eleven grain organic elements, then a white cardboard. All of this sandwiches a wood board which is about 3/4" wider at the top and bottom than the plastic. There are a total of 24 nail holes with one nail missing along the borders.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Casting

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Poor

**Description:** The component is no longer on its guide. The top left hand corner piece about two inches wide and nine inches high broken off and missing along with the cardboard underneath. The cardboard underneath the plastic of the bottom right hand side has minor water damage. There two pieces of tape on the left hand side of the panel. Right of center at the top, there is a 4 1/2" long crack extending from a nail. There are a few other shorter cracks emanating from some of the nail holes. There are also horizontal scuff marks. The abrasion and the fact that it is no longer on its guide may be due to it not running smoothly. Thus far the grain organic material on this side of the component have not been affected by abrasion.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal.

**Maintenance and Conservation:** Although attempts can be made to infill the scratches of the component, as well as the broken pieces, its replacement may be a better option. Too much of the component is damaged that work may lead to a component that is more new than historic. In addition, this may be a costly venture. Although the door is an original Wright design, the acrylic element is not, so replacement is an option. Should the panel be replaced, the original should be documented and stored. Investigation needs to be made as well to best restore the organic material and paper under the plastic panels. UF3 panels should be attached to the frames of the windows for filtering UV radiation.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Sliding cabinet door

**Component Number:** DB.3.b

**Location:** Southeast side of the southwest wall

**Plastic Type:** Acrylic

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 29 3/4" (H) x 38-7/8" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There is a matching panel that creates the sandwich.

**Additional Description:** Along with another identical panel, they sandwich various organic materials. Underneath this component, there are 64 autumn leaves. Underneath the plastic there is a thin plastic coating then the leaves. All of this sandwiches a wood board which is about 3/4" wider at the top and bottom than the plastic. There are a total of 46 nail holes with eight missing nails.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Casting

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Poor

**Description:** The top left hand corner of a size of 1 1/4" high, 3/4" wide and 1 1/2" diagonal size has chipped off and is missing. Where this break is, the leaf is also chipping off. At the top right hand corner, an uneven sized piece which is at its widest 3 3/4" and about 11" high has broken off and is missing. The film underneath is also missing. There are three pieces of film tape on the left hand edge. Top of the bottom left hand corner, there is a tiny chip, and a minor 1" long crack left of the bottom right hand corner. There are also continuous horizontal scuff marks.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal.

**Maintenance and Conservation:** Although attempts can be made to infill the scratches of the component, as well as the broken pieces, its replacement may be a better option. Too much of the component is damaged that work may lead to a component that is more new than historic. In addition, this may be a costly venture. Although the door is an original Wright design, the acrylic element is not, so replacement is an option. Should the panel be replaced, the original should be documented and stored. Investigation needs to be made as well to best restore the organic material and paper under the plastic panels. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Drop-leaf desk
<b>Component Number:</b> DB.4.a
<b>Location:</b> Northwest side of the southwest wall
<b>Plastic Type:</b> Decorative high-pressure laminate using melamine and phenol formaldehyde resins
<b>Color:</b> Opaque semi-glossy white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 1/16" (H) x 38-1/8" (L) x 29 1/2" (D)
<b>Other Similar or Identical Elements:</b> There are four pieces total, with one missing (the panel on the southeast side). This panel is the one at the top.
<b>Additional Description:</b> A square piece of wood that comes out of the "wall." The laminate is clad on plywood and goes into an opening in the wall which is also made of wood.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are minor scratches on the component. There is a piece of tape near the lower right hand corner as a previous attempt at repair. The piece is also slightly delaminating. A recent attempt to glue it down may have been made. Until recently there was a computer on it. This weight may have contributed to the fact that it looks weighed down.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is minimal light from southeast windows and the large southwest windows in the dining room. 2) <i>Artificial light:</i> The effects of this are minimal.
<b>Maintenance and Conservation:</b> The tape needs to be removed with controlled applications of mineral spirits since its glue can have deteriorating effects. In future, the table should not be used to carry heavy loads. The component can be lightly dusted as needed. A decision may be made to inpaint and infill the scratches. The missing laminate piece on the southeast side should be replaced with a similar if not identical piece. The irregular angle of the component should eventually be repaired. UF3 panels should be attached to the frames of the windows for filtering UV radiation.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** March 6, 1997

**Weather:** Windy with partly cloudy skies and periods of sunshine

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Drop-leaf desk

**Component Number:** DB.4.b

**Location:** Northwest side of the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy white

**Shape:** Flat and rectangular

**Size:** 13/16" (H) x 38-1/8" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are four pieces total, with one missing (the panel on the southeast side). This is the front edge of the table.

**Additional Description:** A square piece of wood that comes out of the "wall." The laminate is clad on plywood and goes into an opening in the wall which is also made of wood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are minor scratches on the component. There is some glue material which come off. There is no indication of delamination, but this may have been previously repaired. There is also a brown glue stain at the bottom west corner. Until recently there was a computer on it. This weight may have contributed to the fact that it looks weighed down.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal.

**Maintenance and Conservation:** In future, the table should not be used to carry heavy loads. The component can be lightly dusted as needed. A decision may be made to inpaint and infill the scratches. The missing laminate piece on the southeast side should be replaced with a similar if not identical piece. The irregular angle of the component should eventually be repaired. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Drop-leaf desk
<b>Component Number:</b> DB.4.c
<b>Location:</b> Northwest side of the southwest wall
<b>Color:</b> Opaque semi-glossy white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 13/16" (H) x 1/16" (L) x 29 1/2" (D)
<b>Other Similar or Identical Elements:</b> There are four pieces total, with one missing (the panel on the southeast side). This is the side panel on the northwest side of the table.
<b>Additional Description:</b> A square piece of wood that comes out of the wall. The laminate is clad on plywood and goes into an opening in the wall which is also made of wood.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination
<b>Processed Product Trade Name:</b> Formica®
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are a few minor scratches, and also some glue stains. Until recently there was a computer on it. This weight may have contributed to the fact that it looks weighed down.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is minimal light from southeast windows and the large southwest windows in the dining room. 2) <i>Artificial light:</i> The effects of this are minimal.
<b>Maintenance and Conservation:</b> In future, the table should not be used to carry heavy loads. The component can be lightly dusted as needed. A decision may be made to inpaint and infill the scratches. The missing laminate piece on the southeast side should be replaced with a similar if not identical piece. The irregular angle of the component should eventually be repaired. UV3 panels should be attached to the frames of the windows for filtering UV radiation.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** March 6, 1997

**Weather:** Windy with partly cloudy skies and periods of sunshine

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Drop-leaf desk

**Component Number:** DB.4.d

**Location:** Northwest side of the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy white

**Shape:** Flat and rectangular

**Size:** 1/16" (H) x 38-1/8" (L) x 29 1/2" (D)

**Other Similar or Identical Elements:** There are four pieces total, with one missing (the panel on the southeast side). This is the panel on the under side of the table.

**Additional Description:** A square piece of wood that comes out of the "wall." The laminate is clad on plywood and goes into an opening in the wall which is also made of wood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Towards the back right hand side the panel is slightly delaminating. There is also a brown stain in the shape of a half circle near the notch of the right hand side. There is also another similar stain towards the front left of the panel. There are some small black marks. There are also some black hand marks, presumably from adjusting the table. Until recently there was a computer on it. This weight may have contributed to the fact that it looks weighed down.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal.

**Maintenance and Conservation:** In future, the table should not be used to carry heavy loads. The component can be lightly dusted as needed and if necessary to remove the stains, water alone or with a mild detergent can be used, rinsed thoroughly, then dried immediately. The delaminating piece should be reattached. The missing laminate piece on the southeast side should be replaced with a similar if not identical piece. The irregular angle of the component should eventually be repaired. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Counter
<b>Component Number:</b> DB.5
<b>Location:</b> The top of the southwest wall
<b>Plastic Type:</b> Polyester reinforced with fiberglass and parallel nylon strands
<b>Color:</b> Translucent light yellow
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 1/32" (H) x 119 1/4" (L) x 12 3/4" (D)
<b>Other Similar or Identical Elements:</b> No
<b>Additional Description:</b> There are 25 parallel nylon strands going the length of the component. The width between the strands is uneven. Underneath the component and is in two halves (underneath the paper is the wood counter). Wood frames the component.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> Filon Plastics Corporation; Hawthorne, CA
<b>Processing Method:</b> Reinforced molding
<b>Processed Product Trade Name:</b> Filon®
<b>Processor:</b> Filon Plastics Corporation; Hawthorne, CA
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are minor scratches throughout the component. Also, there is grime caught between it and the paper underneath. The plastic is loose at the area nearest the window where the wood has started to separate (the wood of the frame for the panel below faces the dining room).
<b>Environmental Factors:</b> 1) <i>Natural light:</i> The dining room has windows that are two stories high and open to southern exposure and there are southeast windows in the den. 2) <i>Artificial light:</i> The effects of this are minimal.
<b>Maintenance and Conservation:</b> The part of the wood frame which has loosened should be fixed. If possible, the component should first be removed, and the grime between it and the paper underneath removed before replacing the component. This should be done with light dusting. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> March 6, 1997
<b>Weather:</b> Windy with partly cloudy skies and periods of sunshine
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Balcony panel
<b>Component Number:</b> DB.6
<b>Location:</b> Southwest side of balcony facing the living room
<b>Plastic Type:</b> Fiberglass reinforced polyester; epoxy
<b>Color:</b> Semi-translucent off white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 35 ¾" (H) x 119 ¼" (L)
<b>Other Similar or Identical Elements:</b> No
<b>Additional Description:</b> The suggestion of a summer cloud is created with the combination of epoxy and fiberglass reinforced polyester. There is also loose fiberglass behind the panel.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> Reinforced molding
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Fair
<b>Description:</b> The component has deformed at the top because of insufficient structural support. This appears to be an original design flaw.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> The dining room has windows that are two stories high and open to southern exposure.
<b>Maintenance and Conservation:</b> Investigation needs to be made to correct the deformation of the component by adding greater structural support. The plastic may be able to be gently placed back into its original shape. Care should be given not to cause additional harm to the component. In addition, UF3 panels should be attached to the frames of the windows for filtering UV radiation.







MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> DB.7.a
<b>Location:</b> On a shelf on the southwest side of the den
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Opaque brown with black outer edge
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are two circular switches total. This is the top switch.
<b>Additional Description:</b> This is the top of two circular switches located at the top half of two adjacent switch plates. The switch is surrounded by a transparent switch plate (DB.9.a). There is gold leaf paper under the switch plate. The bottom switch component has a dimmer dial (DB.8) and a transparent switch plate (DB.9.b).
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> A coating, which is still evident on the outer edge, appears to have worn off from use.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is minimal light from southeast windows and the large southwest windows in the dining room. 2) <i>Artificial light:</i> The effects of this are minimal. 3) <i>Human:</i> Hands touch the switch regularly.
<b>Maintenance and Conservation:</b> If possible, switch should be minimally used to reduce the wear to the coating. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. Otherwise, the component should be lightly dusted as needed. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Light switch

**Component Number:** DB.7.b

**Location:** On a shelf on the southwest side of the den

**Plastic Type:** (unknown)

**Color:** Opaque white with gold and minor patina

**Shape:** Circular

**Size:** 1-1/8" diameter

**Other Similar or Identical Elements:** There are two circular switches total. This is the bottom switch.

**Additional Description:** This is the bottom of two circular switches located at the top half of two adjacent switch plates. The switch is surrounded by a transparent switch plate (DB.9.a). There is gold leaf paper under the switch plate. The bottom switch component has a dimmer dial (DB.8) and a transparent switch plate (DB.9.b).

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** The gold coating, which is still evident on the outer edge, appears to have worn off from use.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal. 3) *Human:* Hands touch the switch regularly.

**Maintenance and Conservation:** If possible, the switch should be minimally used to reduce the wear to the coating. The wear of the coating should perhaps be kept as a record of use. Should aesthetics become an issue, then options for recoating should be investigated. Otherwise, the component should be lightly dusted as needed. UF3 panels should be attached to the frames of the windows for filtering UV radiation.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Den-balcony

**Room Number:** H.2

**Exposure:** West/north/east

**MATERIAL DESCRIPTION**

**Component:** Dimmer dial

**Component Number:** DB.8

**Location:** On a shelf on the southwest side of the den

**Plastic Type:** (unknown)

**Color:** White

**Shape:** Cylindrical

**Size:** 1-5/8" diameter + 3/4" (D) of switch

**Other Similar or Identical Elements:** No

**Additional Description:** This is a light dimmer dial located at the bottom half of two adjacent switch plates. It is surrounded by a transparent plastic switch plate (DB.9.b) and there is gold leaf paper underneath the switch plate. The switch plate (DB.9.a) has switches (DB.7.a-b).

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There is some grime, especially in the crevices of the ridges, but there is no sign of deterioration.

**Environmental Factors:** 1) *Natural light:* There is minimal light from southeast windows and the large southwest windows in the dining room. 2) *Artificial light:* The effects of this are minimal. 3) *Human:* Hands touch the dial regularly.

**Maintenance and Conservation:** The component should be lightly dusted as needed. A toothpick should be used to gently remove the grime from the crevices. If necessary, water alone or with a mild detergent can be used, rinsed thoroughly, then dried immediately. UF3 panels should be attached to the frames of the windows for filtering UV radiation.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch plate
<b>Component Number:</b> DB.9.a
<b>Location:</b> On a shelf on the southwest side of the den
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Square with two circular holes
<b>Size:</b> 3-7/8" (H) x 4 1/2" (L) x 3/16" (D)
<b>Other Similar or Identical Elements:</b> There is another switch plate below.
<b>Additional Description:</b> This is the light switch plate covering the top half of a two part lighting system. There are two circular light switches (DB.7.a, b) and gold leaf paper underneath the component. The bottom half of the system has a dimmer dial (DB.8) surrounded by a plate (DB.9.b).
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no visible deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is minimal light from southeast windows and the large southwest windows in the dining room. 2) <i>Artificial light:</i> The effects of this are minimal.
<b>Maintenance and Conservation:</b> Light dusting when needed.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Den-balcony
<b>Room Number:</b> H.2
<b>Exposure:</b> West/north/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Dimmer dial plate
<b>Component Number:</b> DB.9.b
<b>Location:</b> On a shelf on the southwest side of the den
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent
<b>Shape:</b> Square with a circular hole
<b>Size:</b> 4 1/2" (H) x 4 1/2" (L) x 3/8" (D)
<b>Other Similar or Identical Elements:</b> There is another switch plate above.
<b>Additional Description:</b> This is the light switch plate covering the bottom half of a two part lighting system. There is a dimmer dial (DB.8) in the center and there is gold leaf paper underneath the component. The top half of the system has two switches (DB.7.a, b) that is surrounded by a switch plate (DB.9.a).
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> Although the component itself is in good condition, it is pulling away from the its side panel.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> There is minimal light from southeast windows and the large southwest windows in the dining room. 2) <i>Artificial light:</i> The effects of this are minimal.
<b>Maintenance and Conservation:</b> Light dusting when needed. UF3 panels should be attached to the frames of the windows for filtering UV radiation.





















## **H.3            LAVATORY-BAR**





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Lamination for an obi panel

**Component Number:** LB.1.a

**Location:** At the sink of the northwest wall

**Plastic Type:** (unknown)

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 20" (H) x 33" (L) x 1/8" (D)

**Other Similar or Identical Elements:** There are a total of four laminated obi pieces. This, the longest piece, is below the front panel of the sink.

**Additional Description:** An obi is a broad sash worn with a Japanese kimono. The panel is stationary. The bottom edge of the obi is not laminated. Backing material is a board.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Coating

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair to poor

**Description:** For all four of the elements, the plastic layers are cracked in several locations. They tend to be long cracks. For this element, there are two vertical crooked cracks on the plastic surface.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* The water from the sink splashing onto the component.

**Maintenance and Conservation:** The sink should ideally be used minimally in order to reduce the amount of moisture on the plastic, especially where there are cracks and the obi becomes vulnerable to moisture. The component should be lightly dusted only and kept as dry as possible to prevent moisture from penetrating into the cracks. The fluorescent lights should be fitted with plastic sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Repair to the cracks cannot be made until the plastic used is identified.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Lamination for an obi cabinet door

**Component Number:** LB.1.b

**Location:** At the sink of the northwest wall

**Plastic Type:** (unknown)

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 17-5/8" (H) x 17" (L)

**Other Similar or Identical Elements:** There are a total of four laminated obi pieces. This clads the refrigerator door.

**Additional Description:** An obi is a broad sash worn with a Japanese kimono.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Coating

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair to poor

**Description:** For all four of the elements, the plastic layers are cracked in several locations. The cabinet door has two web-like cracks, with most cracks going vertically. The door itself does not stay intact. It is being held up by a piece of pottery.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* The water from the sink splashing onto the component.

**Maintenance and Conservation:** The sink should ideally be used minimally in order to reduce the amount of moisture on the plastic, especially where there are cracks and the obi becomes vulnerable to moisture. The component should be lightly dusted only and kept as dry as possible to prevent moisture from penetrating into the cracks. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Repair to the cracks cannot be made until the plastic used is identified.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Lamination for an obi sink counter
<b>Component Number:</b> LB.1.c
<b>Location:</b> At the sink of the northwest wall
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 1/8" (H) x 19" (L) x 20-7/8" (D) (the component curves at a 90° angle at the front, creating a 1" edge)
<b>Other Similar or Identical Elements:</b> There are a total of four laminated obi pieces. This is located southwest of the sink top.
<b>Additional Description:</b> An obi is a broad sash worn with a Japanese kimono.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> Coating
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Fair to poor
<b>Description:</b> For all four of the elements, the plastic layers are cracked in several locations. The top of this component has one long crack going northwest/southeast, two other shorter cracks, and a map crack. The southwest front edge of it is broken off along with the obi underneath. The piece still exists.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) <i>Artificial light:</i> One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) <i>Moisture:</i> The water from the sink splashing onto the component.
<b>Maintenance and Conservation:</b> The sink should ideally be used minimally in order to reduce the amount of moisture on the plastic, especially where there are cracks and the obi becomes vulnerable to moisture. The component should be lightly dusted only and kept as dry as possible to prevent moisture from penetrating into the cracks. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Repair to the cracks cannot be made until the plastic used is identified.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Lamination for an obi sink counter

**Component Number:** LB.1.d

**Location:** At the sink of the northwest wall

**Plastic Type:** (unknown)

**Color:** Transparent colorless

**Shape:** Flat and rectangular

**Size:** 1/8" (H) x 11" (L) x 20 3/4" (D)

**Other Similar or Identical Elements:** There are a total of four laminated obi pieces. This is located northeast of the sink top.

**Additional Description:** An obi is a broad sash worn with a Japanese kimono.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Coating

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair to poor

**Description:** For all four of the elements, the plastic layers are cracked in several locations. There are five long cracks that generally run northwest/southeast.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* The water from the sink splashing onto the component.

**Maintenance and Conservation:** The sink should ideally be used minimally in order to reduce the amount of moisture on the plastic, especially where there are cracks and the obi becomes vulnerable to moisture. The component should be lightly dusted only and kept as dry as possible to prevent moisture from penetrating into the cracks. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Repair to the cracks cannot be made until the plastic used is identified.







**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Toilet tank cladding

**Component Number:** LB.2.a

**Location:** Against the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 1/16" (H) x 65" (L) x 10" (D)

**Other Similar or Identical Elements:** There are five related laminate elements in all. This component clads the counter top of the toilet tank and extends from the toilet to southwest side of the sink counter. There was another shorter vertical laminate at a 90 degree angle to the one that exists, but this is missing. The body of the toilet has been painted black in order to match this (the paint from this is chipping).

**Additional Description:** The plastic is laminated on plywood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** There are general wear and tear scratches as well as what appear to be light scratches from cleaning with an abrasive. All of the pieces, except for the piece above the toilet backing (LB.2.c), are delaminating. As with the other pieces, there are dried water stains.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The laminates need to be reattached to the substrates. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Toilet tank cladding

**Component Number:** LB.2.b

**Location:** Against the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and irregular

**Size:** 22 3/4" (H) x 47 1/4" (L) (only what is exposed) x 1/16" (D)

**Other Similar or Identical Elements:** There are five related laminate elements in all. This component clads the back of the toilet. There was another shorter vertical laminate at a 90 degree angle to the one that exists, but this is missing. The body of the toilet has been painted black in order to match this (the paint from this is chipping).

**Additional Description:** The plastic is laminated on plywood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** There are general wear and tear scratches as well as what appear to be light scratches from cleaning with an abrasive. All of the pieces, except for the piece above the toilet backing (LB.2.c), are delaminating. In order to prevent further delamination of this piece, it has been taped onto the more stable LB.2.c piece with two pieces of duct tape. As with the other pieces, there are dried water stains.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The laminates need to be reattached to the substrates. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Toilet tank cladding

**Component Number:** LB.2.c

**Location:** Against the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 1/16" (H) x 65" (L) (estimated) x 3/4" (D)

**Other Similar or Identical Elements:** There are five related laminate elements in all. This component is a strip just above the toilet's back. There was another shorter vertical laminate at a 90 degree angle to the one that exists, but this is missing. The body of the toilet has been painted black in order to match this (the paint from this is chipping).

**Additional Description:** This is the top of the toilet tank, and extend from the toilet to southwest side of the sink counter. The plastic is laminated on plywood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** There are general wear and tear scratches as well as what appear to be light scratches from cleaning with an abrasive. This is the only piece which is not delaminating. As with the other pieces, there are dried water stains.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The laminates need to be reattached to the substrates. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Toilet tank cladding

**Component Number:** LB.2.d

**Location:** Against the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 24" (H) x 1/16" (L) x 10-1/8" (D) [with a 1-3/8" (H) x 1 3/4" (D) portion cut out at the top of the northeast side]

**Other Similar or Identical Elements:** There are five related laminate elements in all. This component clads the southeast side of the toilet tank. There was another shorter vertical laminate at a 90 degree angle to the one that exists, but this is missing. The body of the toilet has been painted black in order to match this (the paint from this is chipping).

**Additional Description:** The piece is laminated on plywood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** There are general wear and tear scratches as well as what appear to be light scratches from cleaning with an abrasive. All of the pieces, except for the piece above the toilet backing (LB.2.c), are delaminating. As with the other pieces, there are dried water stains.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The laminates need to be reattached to the substrates. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Toilet tank cladding

**Component Number:** LB.2.e

**Location:** Against the southwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** ¾" (H) x 65" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are five related laminate elements in all. This component clads the border for the countertop. There was another shorter vertical laminate at a 90 degree angle to the one that exists, but this is missing. The body of the toilet has been painted black in order to match this (the paint from this is chipping).

**Additional Description:** This piece is laminated onto another piece of decorative laminate.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** There are general wear and tear scratches as well as what appear to be light scratches from cleaning with an abrasive. This piece is delaminating badly on its southwest side. In addition, all of the pieces, except for the piece above the toilet backing (LB.2.c), are delaminating. As with the other pieces, there are dried water stains.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The laminates need to be reattached to the substrates. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

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**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Sink counter

**Component Number:** LB.3

**Location:** Northwest of the sink counter

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 1/16" (H) x 59-3/8" (L) x 2 3/4" (D)

**Other Similar or Identical Elements:** No

**Additional Description:** (none)

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are light horizontal abrasion marks, most likely from previous cleanings. Otherwise there are no signs of deterioration.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The sink should ideally be used minimally in order to reduce the amount of moisture on the plastic and its adhesive. Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. Although not significantly harmful to these plastics, the fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

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**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Wall panel

**Component Number:** LB.4.a

**Location:** Southwest of the mirror on the northwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 46 1/2" (H) x 4 1/2" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are two similar components. They are adjacent to each other. This piece is to the southwest.

**Additional Description:** (none)

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are some small identical cracks on the left side of the panel and some light abrasion scratches most likely as the result of cleaning. Otherwise this component is in good condition.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. Although not significantly harmful to these plastics, the fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Wall panel

**Component Number:** LB.4.b

**Location:** Southwest of the mirror on the northwest wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 46 1/2" (H) x 6" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are two similar components. They are adjacent to each other. This piece is to the northeast.

**Additional Description:** (none)

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There is a diagonal scratch near the top and some light abrasion scratches most likely as the result of cleaning. Otherwise this component is in good condition.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** Cleaning with any type of abrasive material needs to be avoided. The component should be lightly dusted. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. Although not significantly harmful to these plastics, the fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

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**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Tambour door

**Component Number:** LB.5

**Location:** Northeast wall, adjacent to the northwest wall

**Plastic Type:** (unknown)

**Color:** Opaque matte off white (except for the very top extruded piece which is beige)

**Shape:** Corrugated and rectangular

**Size:** 34 1/4" (H) x 21 3/4" (L) (Fits the space of this size); each extruded piece is about 13/16" high

**Other Similar or Identical Elements:** No

**Additional Description:** This was designed to be the liquor cabinet. The component is composed of 42 extruded horizontal pieces and is framed in wood on the sides and bottom. The very bottom piece has a lip. There is a plaster panel located directly above.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** Extrusion

**Processed Product Trade Name:** (unknown)

**Processor:** Anchor Plastic Company, Inc.; Long Island City, NY

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Although there is no visible deterioration thus far, there is great potential danger because the component does not run smoothly along its guides. There were originally three other similar tambour doors throughout the house, but were removed because they were difficult to open and close. There are some black specks; one drip of white paint; and other stains that appear to be easily removable.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The component should rarely if ever be opened and closed as there is no great need to use the space behind it. However, if desired, the guides can be lubricated with paraffin wax or hard micro-crystalline wax. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. The component needs only to be lightly dusted as needed. If necessary, the component should be cleaned with either water alone or with a mild detergent, rinsed thoroughly then dried immediately. To remove the paint, a fingernail or scalpel can be gently used.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Counter cladding

**Component Number:** LB.6.a

**Location:** The built-in counter against the northeast wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 1/16" (H) x 69-7/8" (L) x 18 1/4" (D)

**Other Similar or Identical Elements:** There are two related pieces. This is the counter top.

**Additional Description:** This component clads a plywood substrate. The drawers below are also of wood. There is a wood vertical partition to its left which divides it from the sink area. Behind the component, along the wall. Some of the woven organic material near the laminate has unraveled. Three vertical metal pieces that hold up brackets for shelves.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** The component is slightly delaminating from its plywood core. There was some attempt made to tape it down to the adjacent laminate piece (LB.6.b) near the northwest edge, but the tape is now missing leaving behind residue. It appears that the bowing may have been corrected with glue.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The tape should be removed with controlled applications of mineral spirits since it has the potential to deteriorate and discolor the laminate over time. The laminate should then be reattached to its substrate if necessary. The component only needs to be lightly dusted as needed. If necessary, it can be cleaned with water alone or with a mild detergent, rinsed thoroughly, then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

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**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Counter

**Component Number:** LB.6.b

**Location:** The built-in counter against the northeast wall

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Glossy opaque black

**Shape:** Flat and rectangular

**Size:** 7/8" (H) x 70" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are two related pieces. This is the border on the southwest edge of the counter.

**Additional Description:** This component clads a plywood substrate. The drawers below are also of wood. There is a wood vertical partition to its northwest which divides it from the sink area.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** The component is slightly delaminating from its plywood core. There was some attempt made to tape it down to the adjacent laminate piece (LB.6.a) near the northwest edge, but the tape is now missing leaving behind residue. It appears that the bowing may have been corrected with glue.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The tape should be removed with controlled applications of mineral spirits since it has the potential to deteriorate and discolor the laminate over time. The laminate should then be reattached to its substrate if necessary. The component only needs to be lightly dusted as needed. If necessary, it can be cleaned with water alone or with a mild detergent, rinsed thoroughly, then dried immediately. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

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**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Light panel

**Component Number:** LB.7

**Location:** Above the sink area on the northwest wall

**Plastic Type:** Polyester reinforced with fiberglass and parallel nylon strands

**Color:** Semi-translucent off white

**Shape:** Flat and rectangular

**Size:** 1/32" (H) x 68" (L) x 4-1/8" (D)

**Other Similar or Identical Elements:** No

**Additional Description:** It is similar in material as the counter in the den. This component has been placed above the light fixture, rather than below as it was designed. It is framed with wood.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** Filon Plastics Corporation; Hawthorne, CA

**Processing Method:** Reinforced molding

**Processed Product Trade Name:** Filite®

**Processor:** Filon Plastics Corporation; Hawthorne, CA

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Although in good condition, it is no longer used for its purpose, since it sits above the light fixture rather than below, collecting dust, bugs, etc.

**Environmental Factors:** 1) *Natural light:* Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) *Artificial light:* One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) *Moisture:* Moisture from the sink and toilet can affect this area.

**Maintenance and Conservation:** The florescent light should be fitted with a plastic sleeve that filters UV radiation and only minimally used. There are also tubes available with a built-in filter. The component should be put back into place for aesthetic reasons. The component should be lightly dusted, and as it may prove necessary, cleaned with either water alone or with a mild detergent, rinsed thoroughly, then dried immediately.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Wall panel
<b>Component Number:</b> LB.8.a
<b>Location:</b> Southwest of lavatory-bar dividing it from the house entry hall
<b>Plastic Type:</b> Decorative high-pressure laminate (?)
<b>Color:</b> Matte opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 30" (H) x 27-1/8" (L)
<b>Other Similar or Identical Elements:</b> There are a total of four panels. This component is part of a wall and is located furthest northwest facing the house entry hall.
<b>Additional Description:</b> There are three panel frames total, of which two are walls and one is the door to the lavatory-bar. The frame of the panel is wood. The top most portion of each panel has green glass, the middle has a panel woven of organic material and the bottom most portion has the plastic laminate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination (?)
<b>Processed Product Trade Name:</b> Formica® (?)
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no apparent deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Some light from overhead ribbon window lights.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows for filtering UV radiation. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Wall panel
<b>Component Number:</b> LB.8.b
<b>Location:</b> Southwest of lavatory-bar dividing it from the house entry hall
<b>Plastic Type:</b> Decorative high-pressure laminate (?)
<b>Color:</b> Matte opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 30" (H) x 29-7/8" (L) est.
<b>Other Similar or Identical Elements:</b> There are a total of four panels. This component is a part of a wall and is located in the middle facing the house entry hall.
<b>Additional Description:</b> There are three panels frames total, of which two are walls and one is the door to the lavatory-bar. The frame of the panel is wood. The top most portion of each panel has green glass, the middle has a panel woven of organic material and the bottom most portion has the plastic laminate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination (?)
<b>Processed Product Trade Name:</b> Formica® (?)
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no apparent deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Some light from overhead ribbon window lights.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows for filtering UV radiation. Light dusting as needed.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Door panel
<b>Component Number:</b> LB.8.c
<b>Location:</b> Southwest of lavatory-bar dividing it from the house entry hall
<b>Plastic Type:</b> Decorative high-pressure laminate (?)
<b>Color:</b> Matte opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 30" (H) x 27-1/8" (L)
<b>Other Similar or Identical Elements:</b> There are a total of four panels. This component is part of a door and is located furthest southeast facing the house entry hall.
<b>Additional Description:</b> There are three panel frames total, of which two are walls and one is the door to the lavatory-bar. The frame of the panel is wood. The top most portion of each panel has green glass, the middle has a panel woven of organic material and the bottom most portion has the plastic laminate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination (?)
<b>Processed Product Trade Name:</b> Formica® (?)
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no apparent deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Some light from overhead ribbon window lights.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows for filtering UV radiation. The door should not be regularly opened and closed in order to reduce stress to its individual elements. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Door panel
<b>Component Number:</b> LB.8.d
<b>Location:</b> Southwest of lavatory-bar dividing it from the house entry hall
<b>Plastic Type:</b> Decorative high-pressure laminate (?)
<b>Color:</b> Matte opaque white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> 30" (H) x 27-1/8" (L)
<b>Other Similar or Identical Elements:</b> There are a total of four panels. This component is part of a door and is located furthest southeast facing the lavatory-bar.
<b>Additional Description:</b> There are three panel frames total, of which two are walls and one is the door to the lavatory-bar. The frame of the panel is wood. The top most portion of each panel has green glass, the middle has a panel woven of organic material and the bottom most portion has the plastic laminate.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination (?)
<b>Processed Product Trade Name:</b> Formica® (?)
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no apparent deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) <i>Artificial light:</i> One incandescent light bulb near the entrance and one long fluorescent tube over the sink. 3) <i>Moisture:</i> Moisture from the sink and toilet can affect this area.
<b>Maintenance and Conservation:</b> The door should not be regularly opened and closed in order to reduce stress to its individual elements. Light dusting as needed. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Ceiling
<b>Component Number:</b> LB.9.a-j
<b>Location:</b> Over the entire lavatory-bar area
<b>Plastic Type:</b> Expanded foamed polystyrene
<b>Color:</b> Opaque off white
<b>Shape:</b> Flat and rectangular
<b>Size:</b> est. 113" (L) (some are shorter) x 8 ¾" (D)
<b>Other Similar or Identical Elements:</b> There are a total of 10 pieces here. However, there are an additional 27 pieces over the house entry hall, the hall connecting to the harem area, the hall area near the lavatory-bar and den, and the stairs leading down to the basement (all are categorized under "house entry hall" for this survey for the sake of simplicity).
<b>Additional Description:</b> This is all exposed and held up by a wood ceiling frame.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> Dow Chemical Company; Midland, Michigan
<b>Processing Method:</b> Extruded foam molding
<b>Processed Product Trade Name:</b> Styrofoam®
<b>Processor:</b> Dow Chemical Company; Midland, Michigan
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are some staining which appears to be water damage on some of the component edges. The material may have discolored slightly over time.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Sunlight from the southwest and southeast ribbon window lights. 2) <i>Artificial light:</i> One incandescent light bulb near the entrance and one long fluorescent tube over the sink.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the ribbon window openings at the southern exposure to prevent future potential deterioration. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Light switch

**Component Number:** LB.10.a

**Location:** Southeast wall at the entry of the lavatory-bar

**Plastic Type:** (unknown)

**Color:** Glossy opaque white

**Shape:** Circular

**Size:** 1-1/8" diameter

**Other Similar or Identical Elements:** There are three switches total. This is the top most switch which controls the basement light.

**Additional Description:** The switches are surrounded by a switch plate (LB.11). There are also two standard switches surrounded by a switch plate located above.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There is a very minor brown stain at the top edge and a hard white stain from paint near the top of the component.

**Environmental Factors:** 1) *Natural light:* Some light from overhead ribbon window lights. 2) *Artificial light:* One fluorescent tube over the sink and on incandescent light bulb near the entrance. 3) *Human:* Hands touch the switch regularly.

**Maintenance and Conservation:** UV3 panels should be attached to the frames of the windows for filtering UV radiation. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Light dusting as needed. A fingernail or scalpel can be used to gently remove the paint.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> LB.10.b
<b>Location:</b> Southeast wall at the entry of the lavatory-bar
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Glossy opaque white
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are three switches total. This is the middle switch which controls the light over the sink.
<b>Additional Description:</b> The switches are surrounded by a switch plate (LB.11). There are also two standard switches surrounded by a switch plate located above.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There are no signs of deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Some light from overhead ribbon window lights. 2) <i>Artificial light:</i> One fluorescent tube over the sink and on incandescent light bulb near the entrance. 3) <i>Human:</i> Hands touch the switch regularly.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows for filtering UV radiation. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Light dusting as needed.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Lavatory-bar

**Room Number:** H.3

**Exposure:** Southwest (minimal)

**MATERIAL DESCRIPTION**

**Component:** Light switch

**Component Number:** LB.10.c

**Location:** Southeast wall at the entry of the lavatory-bar

**Plastic Type:** (unknown)

**Color:** Glossy opaque white

**Shape:** Circular

**Size:** 1-1/8" diameter

**Other Similar or Identical Elements:** There are three switches total. This is the bottom most switch which controls the light of the light fixture.

**Additional Description:** The switches are surrounded by a switch plate (LB.11). There are also two standard switches surrounded by a switch plate located above.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** (unknown)

**Processed Product Trade Name:** (unknown)

**Processor:** (unknown)

**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are no signs of deterioration.

**Environmental Factors:** 1) *Natural light:* Some light from overhead ribbon window lights. 2) *Artificial light:* One fluorescent tube over the sink and on incandescent light bulb near the entrance. 3) *Human:* Hands touch the switch regularly.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows for filtering UV radiation. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Lavatory-bar
<b>Room Number:</b> H.3
<b>Exposure:</b> Southwest (minimal)
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch plate
<b>Component Number:</b> LB.11
<b>Location:</b> Southeast wall at the entry of the lavatory-bar
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Transparent colorless
<b>Shape:</b> Rectangular with a lip and three circular holes
<b>Size:</b> 6 1/4" (H) x 4 1/2" (L) x 3/8" (at widest point) (D)
<b>Other Similar or Identical Elements:</b> No
<b>Additional Description:</b> This switch plate surrounds three plastic switches (LB.10.a-c). There are also two standard switches surrounded by a switch plate located above.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Fair
<b>Description:</b> Towards the bottom are two portions that have cracked and are now missing.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> Minimal light from overhead ribbon window lights. The windows are actually part of the hall and so the light is indirect. 2) <i>Artificial light:</i> One fluorescent tube over the sink and on incandescent light bulb near the entrance.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows for filtering UV radiation. The fluorescent lights should be fitted with sleeves that filter UV radiation and only minimally used. There are also tubes available with a built-in filter. For now, light dusting as needed. In order to repair this component, the plastic type needs to first be identified. Replacement may be a consideration after documenting and storing this original component.















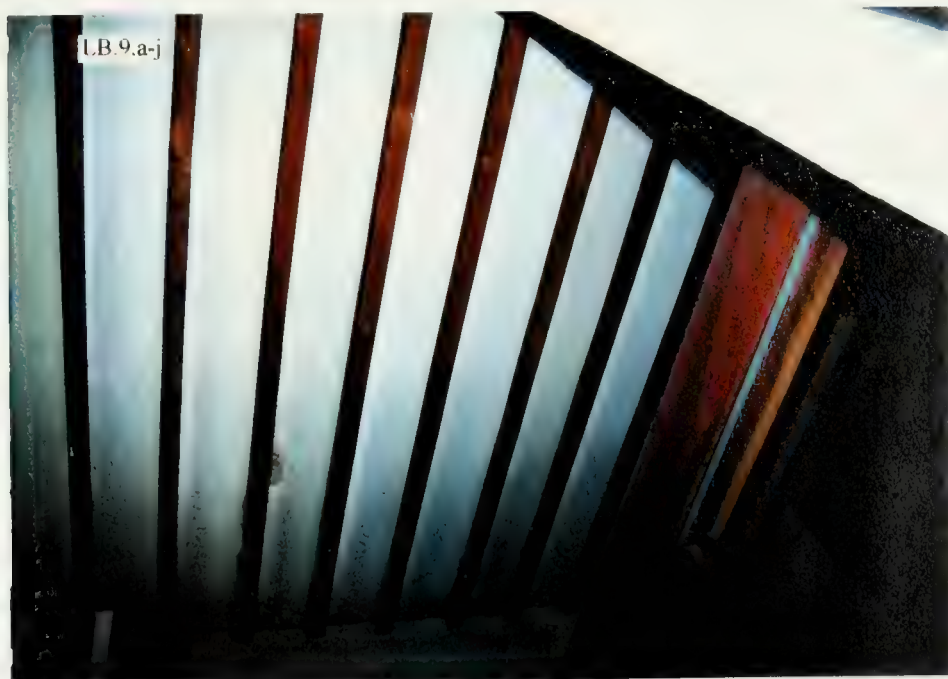














## **H.4            LIVING ROOM**



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet door cladding

**Component Number:** LR.1.a

**Location:** The built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy light red with a reddish brown lacquer coating

**Shape:** Flat and rectangular

**Size:** 21 ¾" (H) x 40 ½" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are three laminates. This reddish brown component clads the southwest most door.

**Additional Description:** The component clads a ½" thick sliding plywood cabinet door. The edge band is most likely oak. The door slides within a wood guide of the cabinet. Each is clad with a reddish brown laminate on one side, and two of the doors have white laminate on the other (the middle white laminate is missing). As with the dining room cabinet doors, the mottled appearance of the coating was most likely an intentional application by Wright. Wright used this red side of this door during the winter season and the white decorative high-pressure laminate side (LR.2.a) for summer.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** To some extent the bottom corners and most of the top corners are chipped and the plywood core has also been damaged. A significant portion is missing. None of the three cabinet doors run smoothly along their guides, most likely accounting for the damage to the laminates and doors.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. 3) *Heat:* There is a heating vent located at the northeast edge of this cabinet.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The cabinet need to be repaired so the doors run smoothly along their guides. Repairs through infilling and inpainting may be considered for the damaged areas of the existing laminates. The replacement of this laminate is not recommended because it is an original Wright design.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet door cladding

**Component Number:** LR.1.b

**Location:** The built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy light red with a reddish brown lacquer coating

**Shape:** Flat and rectangular

**Size:** 22" (H) x 40 1/2" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are three laminates. This reddish brown component clads the middle door.

**Additional Description:** The component clads a 1/2" thick sliding plywood cabinet door. The edge band is most likely oak. The door slides within a wood guide of the cabinet. Each is clad with a reddish brown laminate on one side, and two of the doors have white laminate on the other (the middle white laminate is missing). As with the dining room cabinet doors, the mottled appearance of the coating was most likely an intentional application by Wright. Wright used this red side of this door during the winter season and the missing white decorative high-pressure laminate side for summer.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** A chunk of the top left corner of the door is missing. There is a piece of white tape on it, as an attempt to repair. The lower part is greatly chipped. The plywood is clearly visible as is the kraft paper. The white decorative high-pressure laminate for this door is missing. None of the three cabinet doors run smoothly along their guides, most likely accounting for the damage to the laminates and doors.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. 3) *Heat:* There is a heating vent located at the northeast edge of this cabinet.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The cabinet need to be repaired so the doors run smoothly along their guides. Repairs through infilling and inpainting may be considered for the damaged areas of the existing laminates. The replacement of this laminate is not recommended because it is an original Wright design. However, the missing white laminate piece on the other side of the door should be replaced with an identical or similar piece.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet door cladding

**Component Number:** LR.1.c

**Location:** The built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy light red with a reddish brown lacquer coating

**Shape:** Flat and rectangular

**Size:** 21 3/4" (H) x 42-1/8" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are three laminates. This reddish brown component clads the northeast most door.

**Additional Description:** The component clads a 1/2" thick sliding plywood cabinet door. The edge band is most likely oak. The door slides within a wood guide of the cabinet. Each is clad with a reddish brown laminate on one side, and two of the doors have white laminate on the other (the middle white laminate is missing). As with the dining room cabinet doors, the mottled appearance of the coating was most likely an intentional application by Wright. Wright used this red side of this door during the winter season and the white decorative high-pressure laminate side (LR.2.b) for summer.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Poor

**Description:** In all three instances, the red decorative high-pressure laminate is coming off, but here it is also bowing. Again, there is major damage towards the bottom corners. The top corners are in better condition. In addition, the door does not slide easily. None of the three cabinet doors run smoothly along their guides, most likely accounting for the damage to the laminates and doors.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. 3) *Heat:* There is a heating vent located directly underneath this cabinet space.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The cabinet need to be repaired so the doors run smoothly along their guides. Repairs through infilling and inpainting may be considered for the damaged areas of the existing laminates. The replacement of this laminate is not recommended because it is an original Wright design.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet door cladding

**Component Number:** LR.2.a

**Location:** The built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy white

**Shape:** Flat and rectangular

**Size:** 21 3/4" (H) x 40 1/2" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are two laminates. This white component clads the southwest most door. The middle laminate is missing.

**Additional Description:** The component clads a 1/2" thick sliding plywood cabinet door. The edge band is most likely oak. The door slides within a wood guide of the cabinet. Each is clad with a reddish brown laminate on one side, and two of the doors have white laminate on the other (the middle white laminate is missing). Wright used this white side of this door during the summer season and the red decorative high-pressure laminate side (LR.1.a) for winter.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Fair

**Description:** To some extent the bottom corners and most of the top corners are chipped to the extent where the plywood core has also been damaged. A significant portion is missing. None of the three cabinet doors run smoothly along their guides, most likely accounting for the damage to the laminates and doors.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. 3) *Heat:* There is a heating vent located at the northeast edge of this cabinet.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The cabinet need to be repaired so the doors run smoothly along their guides. Repairs through infilling and inpainting may be considered for the damaged areas of the existing laminates. The replacement of this laminate is recommended only if an exact duplicate of color and texture can be found. If the original is replaced, it should be documented and stored. Investigations should be made into replacing the missing white laminate element.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** November 7, 1996

**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet door cladding

**Component Number:** LR.2.b

**Location:** The built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate using melamine and phenol formaldehyde resins

**Color:** Opaque semi-glossy white

**Shape:** Flat and rectangular

**Size:** 21 3/4" (H) x 42-1/8" (L) x 1/16" (D)

**Other Similar or Identical Elements:** There are three laminates. This white component clads the northeast most door. The middle laminate is missing.

**Additional Description:** The component clads a 1/2" thick sliding plywood cabinet door. The edge band is most likely oak. The door slides within a wood guide of the cabinet. Each is clad with a reddish brown laminate on one side, and two of the doors have white laminate on the other (the middle white laminate is missing). Wright used this white side of this door during the summer season and the red decorative high-pressure laminate side (LR.1.c) for winter.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination

**Processed Product Trade Name:** Formica®

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Poor

**Description:** The white decorative high-pressure laminate was not visible, so only tactile observations were made. There is major damage towards the bottom corners. The top corners are in better condition. In addition, the door does not slide easily. None of the three cabinet doors run smoothly along their guides, most likely accounting for the damage to the laminates and doors.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. 3) *Heat:* There is a heating vent located directly underneath this cabinet space.

**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The cabinet need to be repaired so the doors run smoothly along their guides. Repairs through infilling and inpainting may be considered for the damaged areas of the existing laminates. The replacement of this laminate is recommended only if an exact duplicate of color and texture can be found. If the original is replaced, it should be documented and stored. Investigations should be made into replacing the missing white laminate element.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet interior partition

**Component Number:** LR.3.a

**Location:** Built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate (?)

**Color:** Opaque white

**Shape:** Flat and nearly square

**Size:** 22" (H) x 1/16" (L) x 20 3/4" (D)

**Other Similar or Identical Elements:** There are a total of five partitions. There was also most likely a sixth at the northeast end of the cabinet (there is a gummy residue on the rough surface), but this is today missing. This is the southwest most partition.

**Additional Description:** There are four holes in it to accommodate a total of two shelves. There is one shelf on it, with the other potentially missing. The plastic elements sandwich a plywood core.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination (?)

**Processed Product Trade Name:** Formica® (?)

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are some minor glue drippings as well as glue that had been sloppily applied.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The cabinet doors are usually closed, however, so that there is minimal sunlight. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. The cabinet doors are usually closed, however, so that there is minimal artificial light. 3) *Heat:* There is a heating vent located at the northeast end of the cabinet. It is highly likely that the laminate piece at the northwest end delaminated because it was located nearest to the heat of the vent.

**Maintenance and Conservation:** The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The component should be lightly dusted as needed. The glue remains are evidence of the original application and need not necessarily be removed. Steps should be taken to replace the missing laminate piece at the northwest end.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> December 18, 1996
<b>Weather:</b> Overcast
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Cabinet interior partition
<b>Component Number:</b> LR.3.b
<b>Location:</b> Built-in cabinet on the northwest wall of the living room
<b>Plastic Type:</b> Decorative high-pressure laminate
<b>Color:</b> Opaque white
<b>Shape:</b> Flat and nearly square
<b>Size:</b> 22" (H) x 1/16" (L) x 19 1/4" (D)
<b>Other Similar or Identical Elements:</b> There are a total of five partitions. There was also most likely a sixth at the northeast end of the cabinet (there is a gummy residue on the rough surface), but this is today missing. This is the second from the southwest partition.
<b>Additional Description:</b> There are four holes in it to accommodate a total of two shelves. There is one shelf on it, with the other potentially missing. The plastic elements sandwich a plywood core.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> High-pressure lamination (?)
<b>Processed Product Trade Name:</b> Formica® (?)
<b>Processor:</b> Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> Some glue drippings stain the surface of the laminate.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The cabinet doors are usually closed, however, so that there is minimal sunlight. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. The cabinet doors are usually closed, however, so that there is minimal artificial light. 3) <i>Heat:</i> There is a heating vent located at the northeast end of the cabinet. It is highly likely that the laminate piece at the northwest end delaminated because it was located nearest to the heat of the vent.
<b>Maintenance and Conservation:</b> The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The component should be lightly dusted as needed. The glue remains are evidence of the original application and need not necessarily be removed. Steps should be taken to replace the missing laminate piece at the northwest end.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet interior partition

**Component Number:** LR.3.c

**Location:** Built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate (?)

**Color:** Opaque white

**Shape:** Flat and nearly square

**Size:** 22" (H) x 1/16" (L) x 19 1/4" (D)

**Other Similar or Identical Elements:** There are a total of five partitions. There was also most likely a sixth at the northeast end of the cabinet (there is a gummy residue on the rough surface), but this is today missing. This is the third from the southwest partition.

**Additional Description:** There are four holes in it to accommodate a total of two shelves. There is one shelf on it, with the other potentially missing. The plastic elements sandwich a plywood core.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination (?)

**Processed Product Trade Name:** Formica® (?)

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Some minor glue drippings and a few spider webs.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The cabinet doors are usually closed, however, so that there is minimal sunlight. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. The cabinet doors are usually closed, however, so that there is minimal artificial light. 3) *Heat:* There is a heating vent located at the northeast end of the cabinet. It is highly likely that the laminate piece at the northwest end delaminated because it was located nearest to the heat of the vent.

**Maintenance and Conservation:** The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The component should be lightly dusted as needed. The glue remains are evidence of the original application and need not necessarily be removed. Steps should be taken to replace the missing laminate piece at the northwest end.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet interior partition

**Component Number:** LR.3.d

**Location:** Built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate (?)

**Color:** Opaque white

**Shape:** Flat and nearly square

**Size:** 22" (H) x 1/16" (L) x 19 1/4" (D)

**Other Similar or Identical Elements:** There are a total of five partitions. There was also most likely a sixth at the northeast end of the cabinet (there is a gummy residue on the rough surface), but this is today missing. This is the fourth from the southwest partition.

**Additional Description:** There are four holes in it to accommodate a total of two shelves. There is one shelf on it, with the other potentially missing. The plastic elements sandwich a plywood core.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination (?)

**Processed Product Trade Name:** Formica® (?)

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Some minor glue drippings, a few brown spots and a few spider webs.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The cabinet doors are usually closed, however, so that there is minimal sunlight. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. The cabinet doors are usually closed, however, so that there is minimal artificial light. 3) *Heat:* There is a heating vent located directly below. It is highly likely that the laminate piece at the northwest end delaminated because it was located nearest to the heat of the vent.

**Maintenance and Conservation:** The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The component should be lightly dusted as needed. The glue remains are evidence of the original application and need not necessarily be removed. Steps should be taken to replace the missing laminate piece at the northwest end.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** December 18, 1996

**Weather:** Overcast

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Cabinet interior partition

**Component Number:** LR.3.e

**Location:** Built-in cabinet on the northwest wall of the living room

**Plastic Type:** Decorative high-pressure laminate (?)

**Color:** Opaque white

**Shape:** Flat and nearly square

**Size:** 22" (H) x 1/16" (L) x 19 1/4" (D)

**Other Similar or Identical Elements:** There are a total of five partitions. There was also most likely a sixth at the northeast end of the cabinet (there is a gummy residue on the rough surface), but this is today missing. This is the northeast most partition.

**Additional Description:** There are no holes through this component and there is no shelf. The plastic elements sandwich a plywood core.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** (unknown)

**Processing Method:** High-pressure lamination (?)

**Processed Product Trade Name:** Formica® (?)

**Processor:** Formica Corporation; Cincinnati, OH (subsidiary of American Cyanamid Co.) (?)

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** Large amount of glue drippings.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room are two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The cabinet doors are usually closed, however, so that there is minimal sunlight. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. It is located at the same level as the lower part of the panels. The cabinet doors are usually closed, however, so that there is minimal artificial light. 3) *Heat:* There is a heating vent located directly below. It is highly likely that the laminate piece at the northwest end delaminated because it was located nearest to the heat of the vent.

**Maintenance and Conservation:** The use of the heating vent should ideally be eliminated, or at least it should be kept at low temperatures and minimally used. The component should be lightly dusted as needed. The glue remains are evidence of the original application and need not necessarily be removed. Steps should be taken to replace the missing laminate piece at the northwest end.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** October 17, 1997

**Weather:** Cold and sunny

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Built-in sofa

**Component Number:** LR.4.a

**Location:** Facing west near southwest wall

**Plastic Type:** Vinyl

**Color:** Textured opaque white

**Shape:** Boxy rectangular

**Size:** 22 1/2" (H) x 62 1/2" (L) x 2" (D) (all are estimates)

**Other Similar or Identical Elements:** There are two parts of the sofa that are covered with vinyl. This component covers the back rest cushion.

**Additional Description:** The vinyl upholsters polyurethane foam (LR.5.a) and the frame of the sofa is wood. The vinyl is attached to the wood frame with metal clasps. There were originally two adjacent sofas in a v-shape facing the southwest. The one northwest was taken out a couple of years after installation by Wright.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** E. I. du Pont de Nemours & Company, Inc.; Wilmington, DE

**Processing Method:** Coating

**Processed Product Trade Name:** Fabrilite® (?)

**Processor:** E. I. du Pont de Nemours & Company, Inc.; Wilmington, DE

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There is a tear between the main portion of the vinyl component and the south and middle strips that holds it together to the wood frame. The north strip is intact, but stressed. The large section of the top of the component is torn to expose the foam underneath. There is also a smaller tear at the bottom south end of the component. There are two black stains near the top south corner, and there is a brown stain near the bottom north corner. The crevices are blackened. The back of the component was not observable.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. 3) *Animal:* The family dog and cats climb on top of the sofa, creating a potential for damage.

**Maintenance and Conservation:** The vinyl is covered by a woven cloth, which is protecting the component from the elements such as sunlight and the nails of the family pets. Such continued protection recommended. UV3 panels should be attached to the frames of the windows in order to filter UV radiation. The tears at the seams should be repaired. The component should be cleaned with a mild detergent, rinsed thoroughly, then dried immediately in order to remove the blackened stains.



**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi

**Date:** October 17, 1997

**Weather:** Cold and sunny

**ROOM INFORMATION**

**Building:** House

**Room:** Living room

**Room Number:** H.4

**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Built-in sofa

**Component Number:** LR.4.b

**Location:** Facing west near southwest wall

**Plastic Type:** Vinyl

**Color:** White

**Shape:** Boxy rectangular

**Size:** 4 ½" (H) x 65 ½" (L) x 38" (D) (all are estimates)

**Other Similar or Identical Elements:** There are two parts of the sofa that are covered with vinyl. This component covers the seat cushion.

**Additional Description:** The vinyl upholsters polyurethane foam (LR.5.b) and the frame of the sofa is wood. There were originally two adjacent sofas in a v-shape facing the southwest. The one northwest was taken out a couple of years after installation by Wright.

**Alterations:** No

**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)

**Resin Manufacturer:** E. I. du Pont de Nemours & Company, Inc.; Wilmington, DE

**Processing Method:** Coating

**Processed Product Trade Name:** Fabrilite® (?)

**Processor:** E. I. du Pont de Nemours & Company, Inc.; Wilmington, DE

**Fabricator:** (unknown)

**CONDITION SURVEY**

**General Condition:** Good

**Description:** There are some tears at the seams blackening of the crevices.

**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs. 3) *Animal:* The family dog and cats climb on top of the sofa, and may be the cause of the damage to the main body of the component.

**Maintenance and Conservation:** The vinyl is covered by a woven cloth, which is protecting the component from the elements such as sunlight and the nails of the family pets. Such continued protection recommended. UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The tears at the seams should be repaired. The component should be cleaned with a mild detergent, rinsed thoroughly, then dried immediately in order to remove the blackened stains.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Built-in sofa
<b>Component Number:</b> LR.5.a
<b>Location:</b> Facing west near southwest wall
<b>Plastic Type:</b> Polyurethane foam
<b>Color:</b> Opaque cream
<b>Shape:</b> Boxy rectangular
<b>Size:</b> 22 1/2" (H) x 62 1/2" (L) x 2" (D) (all are estimates)
<b>Other Similar or Identical Elements:</b> There are two sofa cushions. This is the back rest.
<b>Additional Description:</b> There are rows of circular holes throughout the component. The cushion is upholstered with vinyl (LR.4.a) and the frame of the sofa is wood. This cushion is attached to the wood frame with metal clasps on the vinyl that are attached to the back of the sofa. There were originally two adjacent sofas in a v-shape facing the southwest. The one northwest was taken out a couple of years after installation by Wright.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> Mobay Chemical Company (?)
<b>Processing Method:</b> Foamed (MORE?)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> Mobay Chemical Company (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Fair
<b>Description:</b> The component could not be fully investigated because it is covered by vinyl upholstery. However, there is a tear at the top center of the vinyl cover which has exposed a portion of the foam. This portion has become hard, brittle and darker. The non-exposed portion is in good condition.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs. 3) <i>Animal:</i> The family dog and cats climb on top of the sofa, and are threats for potential damage from both the sun and family pets.
<b>Maintenance and Conservation:</b> The vinyl is covered by a woven cloth, which is protecting the component from the elements such as sunlight and the nails of the family pets. Such continued protection recommended in order to prevent further deterioration of the component. UF3 panels should be attached to the frames of the windows in order to filter UV radiation.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Built-in sofa
<b>Component Number:</b> LR.5.b
<b>Location:</b> Facing west near southwest wall
<b>Plastic Type:</b> Polyurethane foam
<b>Color:</b> Opaque cream
<b>Shape:</b> Boxy rectangular
<b>Size:</b> 4 ½" (H) x 65 ½" (L) x 38" (D) (all are estimates)
<b>Other Similar or Identical Elements:</b> There are two sofa cushions. This is the seat cushion.
<b>Additional Description:</b> The cushion is upholstered with vinyl (LR.4.b) and the frame of the sofa is wood. There were originally two adjacent sofas in a v-shape facing the southwest. The one northwest was taken out a couple of years after installation by Wright.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> Mobay Chemical Company (?)
<b>Processing Method:</b> Foamed (MORE?)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> Mobay Chemical Company (?)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> The component could not be fully investigated because it is covered by vinyl upholstery. However, there is an exposed portion at the top of the south end, which has discolored slightly. The texture, however, remains the same, and the rest of the component is in good condition. There may be some deterioration of abrasion from the family dog and cats.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs. 3) <i>Animal:</i> The family dog and cats climb on top of the sofa, and are threats for potential damage.
<b>Maintenance and Conservation:</b> The vinyl is covered by a woven cloth, which is protecting the component from the elements such as sunlight and the nails of the family pets. Such continued protection recommended in order to prevent further deterioration of the component from both the sun and family pets. UF3 panels should be attached to the frames of the windows in order to filter UV radiation.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> October 17, 1997
<b>Weather:</b> Cold and sunny
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Floor
<b>Component Number:</b> LR.6
<b>Location:</b> Covers the upper level floor of the living room
<b>Plastic Type:</b> Epoxy
<b>Color:</b> Light mustard with inclusions
<b>Shape:</b> Irregular
<b>Size:</b> est. 100 square feet
<b>Other Similar or Identical Elements:</b> No
<b>Additional Description:</b> There are stone chips in the epoxy. The floor was originally concrete. In about a couple of years, Wright changed the floor to the current material.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> Mixed and poured in place (?)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> (unknown)
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is a large portion of the component chipped away near the sofa, otherwise the component is in good condition.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows in order to filter UV radiation. The component needs only to be swept on a regular basis, and occasionally cleaned with soap and if necessary a mild detergent, rinsed thoroughly and dried immediately.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> LR.7.a
<b>Location:</b> Near the southeast edge of the top of the built-in cabinet on northeast wall
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Glossy opaque white
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are four switches total. This is the northeast most switch.
<b>Additional Description:</b> The switches are surrounded by a switch plate (LR.8). There is gold colored foil under the plate, and below the paper there is cardboard.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is some minor discoloration at the outer edge.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows in order to filter UV radiation. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> LR.7.b
<b>Location:</b> Near the southeast edge of the top of the built-in cabinet on northeast wall
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Glossy opaque white
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are four switches total. This is the second from the northeast switch.
<b>Additional Description:</b> The switches are surrounded by a switch plate (LR.8). There is gold colored foil under the plate, and below the paper there is cardboard.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is some minor discoloration at the outer edge.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs.
<b>Maintenance and Conservation:</b> UV3 panels should be attached to the frames of the windows in order to filter UV radiation. Light dusting as needed.



MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> LR.7.c
<b>Location:</b> Near the southeast edge of the top of the built-in cabinet on northeast wall
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Glossy opaque white
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are four switches total. This is the third from the northeast switch.
<b>Additional Description:</b> The switches are surrounded by a switch plate (LR.8). There is gold colored foil under the plate, and below the paper there is cardboard.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is some minor discoloration and some staining at the outer edge.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs.
<b>Maintenance and Conservation:</b> UV3 panels should be attached to the frames of the windows in order to filter UV radiation. Light dusting as needed.





MATERIALS AND CONDITION SURVEY: INTERIOR PLASTIC COMPONENTS AT DRAGON ROCK IN GARRISON, NEW YORK
<b>Surveyor:</b> Christeen Taniguchi
<b>Date:</b> November 7, 1996
<b>Weather:</b> Overcast with some drizzle and rain
<b>ROOM INFORMATION</b>
<b>Building:</b> House
<b>Room:</b> Living room
<b>Room Number:</b> H.4
<b>Exposure:</b> West/south/east
<b>MATERIAL DESCRIPTION</b>
<b>Component:</b> Light switch
<b>Component Number:</b> LR.7.d
<b>Location:</b> Near the southeast edge of the top of the built-in cabinet on northeast wall
<b>Plastic Type:</b> (unknown)
<b>Color:</b> Glossy opaque white
<b>Shape:</b> Circular
<b>Size:</b> 1-1/8" diameter
<b>Other Similar or Identical Elements:</b> There are four switches total. This is the southwest most switch.
<b>Additional Description:</b> The switches are surrounded by a switch plate (LR.8). There is gold colored foil under the plate, and below the paper there is cardboard.
<b>Alterations:</b> No
<b>RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION</b>
<b>Resin Trade Name:</b> (unknown)
<b>Resin Manufacturer:</b> (unknown)
<b>Processing Method:</b> (unknown)
<b>Processed Product Trade Name:</b> (unknown)
<b>Processor:</b> (unknown)
<b>Fabricator:</b> Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota
<b>CONDITION SURVEY</b>
<b>General Condition:</b> Good
<b>Description:</b> There is no apparent deterioration.
<b>Environmental Factors:</b> 1) <i>Natural light:</i> All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) <i>Artificial light:</i> There are no overhead lights, just one small lamp with two fluorescent light bulbs.
<b>Maintenance and Conservation:</b> UF3 panels should be attached to the frames of the windows in order to filter UV radiation. Light dusting as needed.





**MATERIALS AND CONDITION SURVEY:  
INTERIOR PLASTIC COMPONENTS AT  
DRAGON ROCK IN GARRISON, NEW YORK**

**Surveyor:** Christeen Taniguchi  
**Date:** November 7, 1996  
**Weather:** Overcast with some drizzle and rain

**ROOM INFORMATION**

**Building:** House  
**Room:** Living room  
**Room Number:** H.4  
**Exposure:** West/south/east

**MATERIAL DESCRIPTION**

**Component:** Light switch plate  
**Component Number:** LR.8  
**Location:** Near the southeast edge of the top of the built-in cabinet on northeast wall  
**Plastic Type:** (unknown)  
**Color:** Transparent colorless  
**Shape:** Rectangular with a lip  
**Size:** 3/8" (H) (at the highest point) x 4-5/16" (L) x 8-1/8" (D)  
**Other Similar or Identical Elements:** No  
**Additional Description:** This is the switch plate for four glossy opaque white circular switches (LR.7.a-d). There is gold colored foil under the plate, and below the paper there is cardboard.  
**Alterations:** No

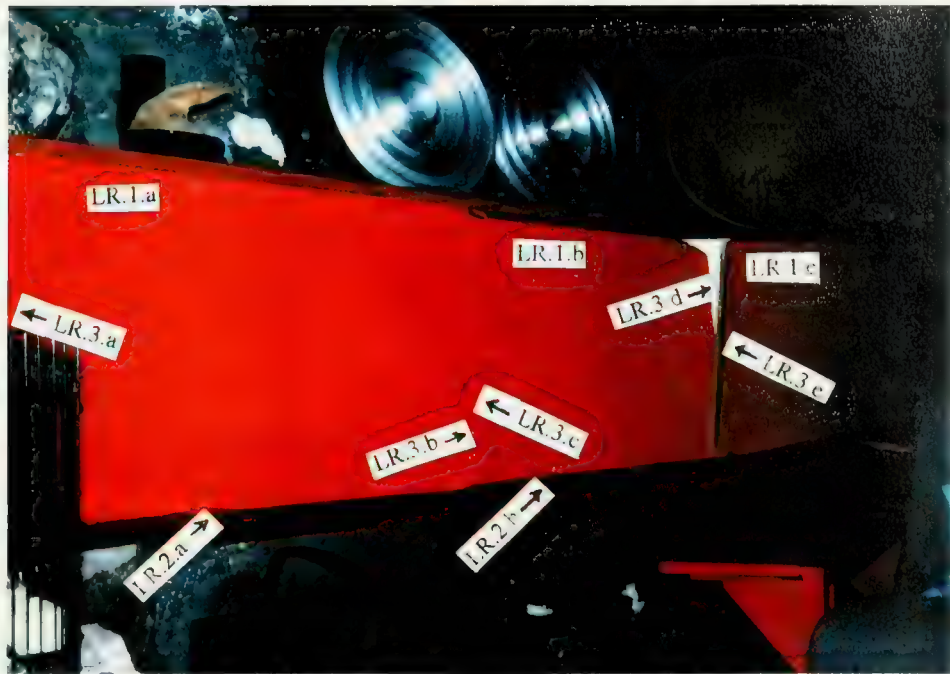
**RESIN MANUFACTURER/PROCESSOR/FABRICATOR INFORMATION**

**Resin Trade Name:** (unknown)  
**Resin Manufacturer:** (unknown)  
**Processing Method:** (unknown)  
**Processed Product Trade Name:** (unknown)  
**Processor:** (unknown)  
**Fabricator:** Minneapolis-Honeywell Regulator Company; Minneapolis, Minnesota

**CONDITION SURVEY**

**General Condition:** Fair to poor  
**Description:** There are three sections of the component edge missing, and a cracking down the middle.  
**Environmental Factors:** 1) *Natural light:* All of the exterior wall spaces of the dining room is two stories of glass in wood frame. In the living room, the entire one story height is glass in wood frames. The component is in the direct path of the heat of the sunlight, which could be harmful. 2) *Artificial light:* There are no overhead lights, just one small lamp with two fluorescent light bulbs.  
**Maintenance and Conservation:** UF3 panels should be attached to the frames of the windows in order to filter UV radiation. For now, light dusting as needed. In order to repair this component, the plastic type needs to first be identified. Replacement may be a consideration after documenting and storing this original component.





















Anne & Jerome Fisher  
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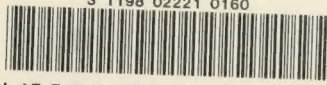


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